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Thesis

CAUSES OF FAILURE IN NORMAL SCHOOL

Submitted by

WILLIAM FREEMONT SKELTON

(B. S. in Ed. Boston University, 1922)

In partial fulfilment of requirements
for the degree of Master of Arts.

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CAUSES OF FAILURE IN NORMAL SCHOOL

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I INTRODUCTION

1) Meaning of Failure

According to the best authorities "to fail" means, "to miss of attaining." In every school we find many students who come far short of attaining that degree of efficiency which their native capacity warrants, and in every teacher training institution we find students who fail to attain that standard which school administrators have a right to expect from those who are to teach and guide the children.

In a recent article appearing in, "School and Society," Superintendent Pulliam of Harrisburg, Illinois, indicates his position concerning normal school graduates who barely meet requirements. He says: "Too often at the present time the difference between the supposedly professionally trained teacher and the one who has less training but more intelligence is too hard to define for some of us to be very enthusiastic about the normal trained teacher with the C-average." (1)

In most normal schools will be found a few students whose scholarship is very low, generally rated C- if that is the lowest passing mark, or D if a five point

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(1) Pulliam, Roscoe, "The Superintendent Thinks Out Loud", School and Society, Vol. XXX., No. 770, Sept. 28, 1929

system is used and D indicates passing. Some of these students will make good in practice teaching and thus justify the school in placing its stamp of approval on their work.

Some D students will probably be awarded diplomas, even if their practice teaching record is not especially good, on the principle that they will be successful in some small remote rural school where more efficient graduates are unwilling to go. If such a person has a pleasing personality and a natural or acquired love for small children, the assumption doubtless is justified. On the other hand, if, in addition to lack of scholarship and teaching skill, the student also has a colorless personality there is no chance of her success in the teaching profession.

Ability to teach is the basis upon which the graduate will be finally judged. It is difficult to predict with certainty that a candidate will or will not be successful in a given situation. If, however, a student has insufficient scholarship, teaching skill, and personality to warrant the expectation of success in any school we must consider such a student a failure.

Since any discussion of failures which ignores special subject disabilities found in otherwise good students is incomplete, in this thesis attention will be given to those subjects which for one reason or another cause trouble for many students and temporary

system is used and it indicates parents. Some of these students will make good in practice teaching and in satisfy the school in placing the stamp of approval on their work.

Some students will probably be awarded diplomas, even if their practice teaching report is not especially good, on the principle that they will be appreciated in some small rural rural school where none of trained graduates are anything to go. If such a person has a pleasing personality and a natural or acquired love for small children, his deficiencies in teaching is justified. On the other hand, if, in addition to lack of supervisory and teaching skill, the student also has a colorless personality there is no chance of her success in the teaching profession.

Ability to teach is the basis upon which the graduate will be finally judged. It is difficult to predict with certainty that a candidate will or will not be successful in a given situation. If, however, a student has impurities, scholarship, teaching skill, and personality to warrant the expectation of success in any school we may consider such a student a failure.

Since any discussion of failures which ignores special subject disabilities found in otherwise good students is incomplete, in this thesis attention will be given to it as one subject which for one reason or another cause trouble for many students and temporary

failure for some individuals.

In order that we may understand the causes of failures due to defects in native equipment and faulty preparation as well as those caused by environmental factors we must consider the personnel and background of the average normal school student group.

2) The Student Body

A study of the registration lists in the catalogues of several normal schools as well as answers to questionnaires sent out to normal schools and teachers' colleges indicates that a very large per cent of those preparing for the teaching profession are women. Although many educators are frankly concerned with the problem of feminization at present existing in our schools, this study does not indicate that there will be any immediate increase in the percentage of men teachers.

In answer to the question: "What per cent of your students are men?" the following results were obtained.

Worcester, Mass.	0
New Haven, Conn.	0
Plymouth, N. H.	1
Rhode Island	3 to 4 (of freshmen)
Salem, Mass.	6
Farmington, Maine	10
Albany, N. Y.	10
Plattsburgh, N. Y.	13

failure for more individuals.

In order that we may understand the causes of failures due to defects in native equipment and family preparation as well as those caused by environmental factors we must consider the personnel and background of the average normal school student group.

3. The Student Body

A study of the registration lists in the catalogues of several Normal schools as well as answers to questionnaires sent out to Normal schools and teachers' colleges indicates that a very large per cent of those preparing for the teaching profession are women. Although many educators are really concerned with the problem of feminization as it exists existing in our schools, this study does not indicate that there will be any appreciable increase in the percentage of men teachers.

In answer to the question: "What per cent of your students are men?" the following results were obtained.

Worcester, Mass.	0
New Haven, Conn.	0
Plymouth, N. H.	1
Rhode Island	3 to 4 (or fraternity)
Salem, Mass.	4
Farmington, Maine	10
Albany, N. Y.	10
Plattsburg, N. Y.	12

Gorham, Maine	15
Keene, N. H.	25
Oshkosh, Wis.	40

Taking the situation as a whole it can be said that a very large percentage of the students in our normal schools are girls between the ages of sixteen and twenty-two, who are definitely preparing themselves for the profession of teaching.

Those schools which have large percentages of men students generally offer some special curricula preparing instructors for vocational or other special subjects in high schools. In many institutions, however, where degrees are granted, we find some men registered in courses which prepare for general teaching in junior and senior high schools.

As we should expect, those preparing for elementary school work are almost exclusively women and in most normal schools the majority of the students are in the elementary curriculum. A few years hence this statement may not be true as more and more of these institutions are offering four year curricula leading to a degree. New Hampshire normal schools granted degrees for the first time in 1928.

3) Admission Requirements

A summary of the admission requirements in Massa-

chusetts, New Hampshire, Connecticut, New York and New Jersey will show that our normal schools have a tendency to follow a process of selection similar to that practiced by colleges.

In all these states graduation from a four year course in an approved high school or full equivalent in academic training is required. Every candidate for admission must submit evidence of good moral character as well as of physical fitness, and in some cases a recommendation from the high school principal is required. Massachusetts requires the high school principal to rate the personal characteristics of the candidate while New Hampshire asks from the headmaster a general estimate of personality traits. In some of the states mentioned and in many others the high school course to be acceptable must include at least fifteen units of work, some of which are required and others chosen from a rather comprehensive specified list. Subject requirements, however, are not ideal, for they may eliminate candidates who would make excellent teachers.

These standards serve their purpose very well on the whole and result in a group of students physically and mentally fit. Human judgment, however, is not infallible and in spite of all preliminary efforts at selection some incompetents pass the barriers, while desirable material may be eliminated. This fact is

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also true in college, and we must accept the inevitable conclusion that safeguards in the way of admission requirements will not prevent all failures.

4) Early Environment and Experience

As a person uses the material which experience has given him in thinking we may consider the early education and the home environment of a student as important factors in determining his success and the ease with which he will make required social adjustments.

A survey of the New Hampshire normal schools shows the following results:

1. Present Residence 780 students,
   Keene and Plymouth
   (a) In the city 35%
   (b) In a village 33%
   (c) In a rural community 32% (2)

2. Elementary school attended:

On account of moving from place to place definite answers were hard to obtain. Some had attended rural schools, village schools and city schools. Several had attended two different types. In Plymouth the percentages were approximately those given in the first column below. The second column shows the approximate proportional enrollment in New Hampshire elementary schools.

---

(2) Meaning agricultural community, not a village.

also true in college, and we must accept the inevitable conclusion that scholarship in the way of admission requirements will not prevent all failures.

4) Early Environment and Experience

As a person uses the material which experience has given him in thinking we may consider the early education and the home environment of a student as important factors in determining his success and the ease with which he will make required social adjustments.

A survey of the New Hampshire rural schools shows the following results:

1. Present residence 920 students.

Towns and Villages

(a) In the city 39%

(b) In a village 32%

(c) In a rural community 29% (2)

2. Elementary school attended:

On account of moving from place to place certain measures were taken to obtain. Some had attended rural schools, village schools and city schools. Several had attended two different types. In Plymouth the percentages were approximately those given in the first column below. The second column shows the approximate proportional enrollment in New Hampshire elementary schools.

---

(2) Statistics compiled for Plymouth, not a village.

	Proportional enrollment in Plymouth Normal School.	Proportional enrollment in New Hampshire Elementary schools.
(a) One room rural school	27%	20%
(b) Village school, graded	38%	45%
(c) City school	35%	35%

3. Column one shows the proportion of students in Plymouth Normal School who graduated from high schools with the enrollment indicated. Column two shows the proportional enrollment for such high schools for New Hampshire.

	Proportional enrollment in Plymouth Normal School.	Proportional enrollment in New Hampshire High Schools.
(a) With an enrollment of less than 100	51%	25%
(b) With an enrollment of 100 to 500	20%	40%
(c) With an enrollment of over 500	29%	35%

Proportion- Proportion-
al enroll- al enroll-
ment in ment in
Plymouth Two Hun-
Normal dred Sixty-
School. eight
schools.

(a) One room rural school 24% 24%
(b) Village school, grades 34% 48%
(c) City school 33% 52%

5. Column one shows the proportion of students in Plymouth Normal School who graduated from high schools with the enrollment indicated. Column two shows the proportional enrollments for such high schools for 1 ex Hampshire.

Proportion- Proportion-
al enroll- al enroll-
ment in ment in
Plymouth Two Hun-
Normal dred Sixty-
School. eight
schools.

(a) With an enrollment of
less than 100 41% 52%
(b) With an enrollment of
100 to 200 50% 40%
(c) With an enrollment of
over 200 38% 8%

These figures are based on 740 replies including both Keene and Plymouth.

4. Why did you attend normal school instead of college?

(a) To prepare for teaching	63%
(b) Financial reasons	25%
(c) Miscellaneous reasons	12%

Based on 190 replies from Plymouth students.

Keene gave the same reasons but did not give the number of instances in each case.

5. Could you have attended college had you wished?

About 50% in both schools answered "yes".

6. Course in high school:

College Preparatory	29%
Latin Scientific	12%
Commercial	24%
Domestic Arts	14%
General	21%

Summary of 190 replies from Plymouth students.

5) Types of Failures and Causes Considered

Failures among students as well as failure in general can be attributed to various causes or combinations of causes. In a treatise of this nature it is not possible to deal with all possible causes, so I have grouped failures in normal school under four heads.

These figures are based on 240 replies including both teens and flapperdom.

4. Why did you attend normal school instead of college?

(a) To prepare for teaching 65%

(b) Financial reasons 20%

(c) Miscellaneous reasons 15%

Based on 120 replies from Plymouth students.

Some gave the same reasons but did not give the number of instances in each case.

5. Could you have attended college had you wished?

About 50% in both schools answered "yes".

6. Courses in high school:

College Preparatory 53%

Latin Scientific 18%

Commercial 9%

Domestic Arts 14%

General 21%

Summary of 100 replies from Plymouth students.

b) Types of Failures and Causes Considered

Failures among students as well as failure in general can be attributed to various causes or combinations of causes. In a treatise of this nature it is not possible to deal with all possible causes, so I have grouped failures in normal school under four heads.

1. Failures due to lack of ability.

While it is probably true that students as well as others, do not use their brain power to its fullest extent, it is equally true that in order to do successful work in a higher institution one must have a reasonable amount of native mental capacity. What is the essential minimum of mental ability, and have we any adequate means of measuring it? May we predict scholastic success on the basis of group test scores? Is high school graduation a guarantee of sufficient ability to successfully carry on normal school work? These questions will be considered in Section II.

2. Failures Due to Lack of Preparation.

A person may have the capacity to learn yet not develop his powers sufficiently to make them useful. Are some of our failures in higher institutions caused by inadequate scholastic preparation? We shall take up that question in Section III.

3. Failures due to Lack of Adjustment

Given mental capacity and adequate scholarship we have a strong combination. Yet if the person with these assets fails to adjust himself to surroundings, he is usually a misfit. Some students in normal school are "square pegs in round holes." This type of failure will be considered in Section IV.

4. Failures due to defects in personality

Many students would achieve greater success in

1. Failures due to lack of ability.

While it is probably true that students as well as others, do not use their brain power to its fullest extent, it is equally true that in order to do successful work in a higher institution one must have a reasonable amount of native mental capacity. What is the essential minimum of mental ability, and have we any adequate means of measuring it? May we predict scholastic success on the basis of group test scores? In high school students a quotient of sufficient ability to successfully carry on normal school work? These questions will be considered in Section II.

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Given mental capacity and adequate scholarship we have a strong combination. Yet if the person with these assets fails to adjust himself to surroundings, he is usually a misfit. Some students in normal school are "square pegs in round holes." This type of failure will be considered in Section IV.

4. Failures due to defects in personality

Many students would achieve greater success in

some line other than teaching, because of certain lacks in personality. Failures and near failures caused by defective personality will be discussed in Section V of this thesis; entitled: Relationship between Personality and Normal School Success.

Section VI is a summary of these investigations with their results and Section VII contains conclusions derived from these studies together with certain recommendations.

6) Procedure Followed in Securing Data

Questionnaires were sent to 19 normal schools and teachers' colleges located in: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania and Wisconsin. Replies were received from Farmington, Maine; Gorham, Maine; Keene, N. H; Salem, Massachusetts; Worcester, Massachusetts; Castleton, Vermont; Providence, R. I.; New Haven, Connecticut; Albany, New York; Plattsburg, New York; and Oshkosh, Wisconsin.

I realize that the questionnaire method of obtaining information has been greatly abused and that school officials receive many requests in the course of a year. In order not to make the filling out of this one too burdensome I reduced it to a minimum of questions which could be answered in a very short

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lapse in responsibility. Failures and near failures
caused by selective perceptivity will be discussed
in Section V of this chapter solution, relationship
between irresponsibility and formal reduced concepts.

Section VI is a summary of these investigations
with brief results and Section VII contains conclu-
sions derived from these studies together with
certain recommendations.

d) Procedure Followed in Securing Data

Questionnaires were sent to 13 normal schools and
teachers' colleges located in: Maine, New Hampshire,
Vermont, Massachusetts, Rhode Island, Connecticut,
New York, New Jersey, Pennsylvania and Wisconsin.
Replies were received from Farmington, Maine;
Fredonia, Saint Lawrence, N. Y. Oswego, Brockport;
Cortland, Buffalo, Geneseo; Oneonta, Warrensburg; Plat-
tsburg, . Ill; New Paltz, Cheyenne, Albany, New
York; Castleton, New York; and Oshkosh, Wisconsin.

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of a year. In order not to make the filling out
of this one too burdensome I reduced it to a minimum
of questions which could be answered in a very short

time. A short letter of explanation was enclosed with each questionnaire and the replies were very helpful to me in arriving at my conclusions. A copy of the questionnaire follows:

7) Questionnaire to Normal Schools

1. What are the admission requirements in your school?
2. Do you give psychological tests to freshmen? What tests are used?
3. Is there close correlation between the results of such tests and normal school marks?
4. Which do you consider the more accurate indicator of a student's probable success in a teacher training institution:
   a. A good scholarship record in high school?
   b. High marks on a psychological test?
5. Do you think it would improve the teaching profession if training institutions refused to accept:
   a. Students who were in the lowest quarter of class in high school?
   b. Students with I. Q.'s below 100?
   c. Students with weak personality?
   d. Students who cannot furnish evidence of very strong character?

time. A short letter of explanation was enclosed with both questionnaire and the replies were delighted to be assisting at my conclusions. A copy of the questionnaire follows:

V) Questionnaire to Normal Schools

1. What are the admission requirements to your school?
2. Do you give psychological tests to freshmen? What tests are used?
3. Is there close correlation between the results of such tests and normal school marks?
4. Which do you consider the more accurate indicator of a student's probable success in a teacher training institution
   a. A good scholarship record in high school?
   b. High marks on a psychological test?
5. If you found it would improve the training procedure if training institution relegan to accept:
   a. Students who were in the lowest quarter of class in high school?
   b. Students with I. Q.'s below 100?
   c. Students with weak personality?
   d. Students who cannot furnish evidence of very strong character?

6. To which of the following causes do you attribute most of the failures in your school:
   a. Poor preparation?
   b. Lack of ability?
   c. Inability of student to adjust himself to the requirements of the school?
   d. Lack of social experience?
   e. Feeling of inferiority?
   f. Lack of interest?
   g. Lack of application to work?
7. Which, if any, of the following causes would account for the development of inferiority complexes in students of teacher training institutions? (Please rate the causes 1st, 2nd, 3rd, in order of their importance.)
   a. Failure to make necessary adjustments.
   b. Failure of faculty members to appreciate student difficulties.
   c. Lack of social experience.
   d. Lack of adequate scholastic preparation.
   e. Lack of understanding among students.
   f. Failure in studies.
   g. Defects in personality.
8. Are many of your students weak in:
   a. The fundamentals of arithmetic?
   b. Problem solving ability?
   c. The fundamentals of English?

6. To which of the following causes do you attribute most of the failures in your school:

a. Poor preparation?

b. Lack of ability?

c. Inability of students to adjust himself to the requirements of the school?

d. Lack of social experience?

e. Feeling of inferiority?

f. Lack of interest?

g. Lack of application to work?

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b. Failure of faculty members to appreciate student difficulties.

c. Lack of social experience.

d. Lack of adequate scholastic preparation.

e. Lack of understanding among students.

f. Failure in studies.

g. Defects in personality.

8. Are many of your students weak in:

a. The fundamentals of arithmetic?

b. Problem solving ability?

c. The fundamentals of English?

d. Ability to express themselves clearly, concisely and correctly in speaking? In writing?

9. Do you consider that the weaknesses mentioned in the previous question are due to:

a. Failure to master the subjects in the grades?

b. Lack of drill in high school?

c. Failure to comprehend what is read?

d. Lack of practice in reasoning?

10. Please rate the following qualifications in order of their importance when considered in recommending a beginning teacher:

a. A good personality.

b. Good scholarship.

c. A good record in training.

d. Initiative and self confidence.

e. Cooperation with the school.

8) Questionnaire to Superintendents

The following questionnaire was sent to fifty superintendents and thirty nine replies were received. These replies furnished part of the material for Section V; Relationship Between Personality and Normal School Success.

1. Which of the following factors do you consider most important in selecting an inexperienced teacher?

d. Ability to express themselves clearly, concisely and correctly in speaking, in writing.

9. Do you consider that the weaknesses mentioned in the previous question are due to:

a. Failure to master the subjects in the student's

b. Lack of drill in high schools?

c. Failure to comprehend what is read?

d. Lack of practice in reasoning?

10. Please rate the following qualifications in order of their importance when considered in representing a business training teacher:

a. A good personality.

b. Good scholarship.

c. A good record in training.

d. Initiative and self confidence.

e. Cooperation with the school.

11. Questions to Superintendents

The following questionnaire was sent to fifty superintendents and thirty nine replies were received. These replies formished part of the material for section IV Relationship Between Personality and Normal School Grades.

1. Which of the following factors do you consider most important in selecting an inexperienced teacher?

(a) Intelligence as measured by standard psychological group tests. ( )

(b) Scholarship as indicated by normal school marks. ( )

(c) Success in practice teaching as shown by training record. ( )

2. As part of a teacher's training which of the following do you consider most important?

(a) Mastery of subject matter.

(b) Study of methods of teaching.

(c) Practice in teaching children obtained in the training school. ( )

3. Will you list what you consider the four or five most important qualifications of a beginning teacher?

Statistical data was obtained from Plymouth Normal School, while records of similar studies were obtained from the sources mentioned in the foot notes.

In some instances it was difficult to secure adequate data in which case conclusions, if made at all, are qualified by explanatory statements.

(a) Intelligence as measured by standard psychological group tests.

(b) Scholarship as indicated by normal school marks.

(c) Success in practice teaching as shown by training report.

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(a) Mastery of subject matter.

(b) Study of methods of teaching.

(c) Practice in teaching children obtained in the training school.

4. Will you list what you consider the four or five most important qualifications of a beginning teacher?

Statistical data was obtained from Pilgrim Normal School, while reports of similar studies were obtained from the sources mentioned in the four cases.

In some instances it was difficult to secure adequate data in which case conclusions, if made at all, are qualified by explanatory statements.

II. FAILURES DUE TO LACK OF ABILITY

1) Intelligence a Native Capacity

Authorities differ greatly concerning the relative importance of heredity and environment as determining the success or failure of an individual. There is reasonable ground for believing, however, that mental capacity is inherited while environment and training largely determine to what extent native intelligence will be developed and used.

If an individual has too little mental ability to care for himself or to adjust himself to a simple environment he becomes a burden to society. Another may possess sufficient intelligence to make his own way, yet can never assume any power of leadership. Just as a certain minimum of mental capacity is necessary to enable a person to adjust himself to society a greater minimum of native intelligence is prerequisite to the successful accomplishment of the work required in a post secondary school. Exactly what this minimum is in terms of available measures cannot be determined with certainty.

As there is no infallible method of measuring native intelligence and as authorities cannot agree on the exact meaning of the term "intelligence," it is inevitable that some students who lack the necessary ability to carry on advanced academic and professional

work will find their way into the normal schools. Such lack of ability will account for some of our failures.

2) Correlation between Psychological Test Scores and Normal School Marks.

We can obtain objective estimates of native ability, as educators generally use the term, from the results of psychological tests. The predictive value of such tests, however, is questionable because of many elusive factors which tend to invalidate the results.

Concerning these factors which make for decreased correlation between the results of intelligence or aptitude tests and rank in scholarship, Frank S. Freeman speaks as follows: "There are numerous factors contributing toward success or failure which are extremely difficult, if not impossible, of measurement for purposes of quantitative analysis. Among these elusive factors are interest in work, motivation, extra curricula activities, time spent in working for a living, health, disturbances of various sorts, time spent in study and reading independent of courses, poor habits of study, etc." (3)

---

(3) (4) Freeman, Frank S., "Elusive Factors Tending to Reduce Correlation between Intelligence Test Ranks and College Grades." SCHOOL AND SOCIETY Vol. XXIX., No. 755, June 15, 1929.

work will find their way into the normal schools, such lack of mobility will account for some of our failures.

B) Correlation between Psychological Test Scores and Normal School Marks.

We can obtain objective estimates of mental ability, as educators generally use the term, from the results of psychological tests. The predictive value of such tests, however, is questionable because of many minor factors which tend to invalidate the results.

Considering these factors which make for decreased correlation between it's results of intelligence or aptitude tests and rank in scholarship, Frank S. Freeman states as follows: "There are numerous factors contributing toward success or failure which are extremely difficult, if not impossible, of measurement for purposes of quantitative analysis. Among these elusive factors are interest in work, motivation, extra curricula activities, time spent in working for a living, health, distances of various sorts, time spent in study and reading independent of courses, poor habits of study, etc." (5)

---

(5) (4) Freeman, Frank S., "Minimum Factors Tending to Reduce Correlations between Intelligence Test Scores and College Grades." SCHOOL AND SOCIETY Vol. XXIX, No. 736, June 3, 1929.

Mr. Freeman does not feel, however, that intelligence or aptitude tests are less valuable because of these factors which tend to lower the coefficients of correlation.

In regard to the question of the value of such tests he says:- "Decreased correlations are due, of course, to the discrepancies which exist between rank in the intelligence test and rank in scholarship. But where significant differences do appear, some clear reason can usually be found for their presence. If this be so, then the discrepancies do not lessen the value of intelligence tests, providing that a careful study is made of individual cases where significant differences do exist." (4)

At the Plymouth Normal School the American Council of Education Psychological Test is given at the beginning of each school year to the entering class. The coefficient of correlation between test scores obtained by using the 1928 edition and freshman marks during the following year was plus .57.

Thurston found the average correlation between test scores and freshman scholarship in 22 colleges using the 1925 edition of this test to be plus .452. (5)

In the following tables the semester marks represent the averages on all subjects given in per cent.

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(5) Bulletin of the Bureau of School Service, University of Kentucky, December 1928. Quotation from an article by L. L. Thurston appearing in: "The Educational Record" for April, 1927.

Dr. Freeman does not feel, however, that intelligence or aptitude tests are less variable because of these factors which tend to lower the coefficients of correlation.

In regard to the question of the value of such tests he says:- "Increased correlations are due, of course, to the discrepancies which exist between rank in the intelligence test and rank in scholarship. But where significant differences do appear, some clear reason can usually be found for their presence. If this be so, then the discrepancies do not lessen the value of intelligence tests, providing that a natural study is made of individual cases where significant differences do exist." (4)

At the Fiftieth Annual School the American Council of Education Psychological Test is given at the beginning of each school year to the entering class. The coefficients of correlation between test scores obtained by using the 1920 edition and freshman marks during the following year was .47.

Thorndike found the average correlation between test scores and freshman scholarship in colleges using the 1920 edition of this test to be .45. (5)

In the following tables the coefficient marks represent the averages of all students given in the years.

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(4) Bulletin of the Bureau of School Service, University of Kentucky, December 1928. Quotation from article by L. J. Thorndike appearing in "The Educational Record" for April, 1929.

Seventy per cent is the passing mark but a student is expected to maintain an average of seventy-five.

Table I is a representative group from the two year elementary curriculum entering in 1928. In this table the first column represents names of students; the second shows the score obtained by each student on the American Council Psychological Test, edition of 1928. Column three shows the relative quartile position in the class of each student listed, 1st meaning the highest quarter and 4th the lowest. The fourth column shows the scholastic average of each student during her first semester in normal school while the fifth shows the relative quartile position of each in her normal school class for the first semester. Columns six and seven give similar data for the second semester. The last column shows the quartile position of each student in her high school class. Blank spaces indicate that no data was available.

Table II is composed of students from the three year junior high school curriculum and the four year commerce and history curricula, entering in September, 1929. The columns in this table are explained in the same way as the first five columns in Table I. The test used was the American Council Psychological Test, edition of 1929.

Coefficients of correlation at Plymouth are reckoned by the Pearson method, which is fully explained in all standard books on educational statistics.

Seventy per cent in the passing mark for a student is expected to maintain an average of seventy-five.

Table I is a representative group from the ten year elementary curriculum criterion in 1929. In this table the first column represents terms of students; the second shows the score obtained by each student on the American Council Psychological Test, edition of 1928. Columns three shows the relative quartile position in the class of each student listed, let meaning the highest quarter and 4th the lowest. The fourth column shows the scholastic average of each student during the first semester in normal school while the fifth shows the relative quartile position of each in her normal school class for the first semester. Columns six and seven give similar data for the second semester. The last column shows the quartile position of each student in her high school class. Black spaces indicate that no data was available.

Table II is composed of students from the three year junior high school curriculum and the four year commerce and history curricula, entering in September, 1929. The columns in this table are explained in the same way as the first five columns in Table I. The test used was the American Council Psychological Test, edition of 1929.

Coefficients of correlation at Plymouth are reckoned by the Pearson method, which is fully explained in all standard books on educational statistics.

Table I:

Showing score on American Psychological Tests, edition of 1928, cue position in class on test scores, average marks in normal school for first and second semesters, quartile position in normal school class, and position of each student in her high school class based on four years of work.

Student	Psy. Test Score	Quartile of Class	1st semester average	Quartile Position	2nd semester average	Quartile position	Quartile in High School
A	37	4th	77	4th	80	4th	2nd
B	134	2nd	77	4th	80½	3rd	1st
C	132	2nd	80	3rd	82	3rd	2nd
D	43	4th	75	4th	79	4th	4th
E	74	4th	77	4th	80	4th	2nd
F	215	1st	84	2nd	84	2nd	2nd
G	93	3rd	78	3rd	78	4th	2nd
H	60	4th	77	4th	80	4th	2nd
I	168	1st	80	3rd	84½	2nd	-
J	132	2nd	89	1st	88½	1st	1st
K	39	4th	80	3rd	81	3rd	4th
L	171	1st	87	1st	86	1st	1st
M	203	1st	85	1st	85½	1st	-
N	103	3rd	86	1st	86	1st	1st
O	72	4th	78	3rd	81	3rd	3rd
P	120	3rd	80	3rd	80	4th	-
Q	165	2nd	78	3rd	82	3rd	4th
R	199	1st	87	1st	86	1st	1st
S	111	3rd	83	2nd	85	1st	4th
T	115	3rd	80	3rd	81	3rd	-

Table 17

Showing scores on American Psychological Tests, spring of 1928, and position in class on test scores, average marks in normal school for first and second semesters, quartile position in normal school class, and position of each student in her high school class based on four years of work.

Student	Psy. Test Score	Quartile of Class	Sem. Avg. Age	Sem. Avg. Position	Sem. Avg. Age	Sem. Avg. Position	Quartile in High School Class
A	97	4th	77	4th	80	4th	2nd
B	104	2nd	77	4th	80½	3rd	1st
C	122	3rd	80	3rd	85	3rd	2nd
D	45	4th	75	4th	82	4th	4th
E	74	4th	77	4th	80	4th	3rd
F	113	1st	84	2nd	84	2nd	1st
G	97	3rd	73	3rd	78	4th	3rd
H	40	4th	77	4th	83	4th	3rd
I	142	1st	80	3rd	81½	2nd	-
J	122	2nd	87	1st	86½	1st	1st
K	90	4th	80	3rd	81	3rd	4th
L	121	1st	87	1st	86	1st	1st
M	104	1st	85	1st	84½	1st	-
N	118	2nd	86	1st	85	1st	1st
O	92	4th	79	2nd	81	3rd	3rd
P	120	3rd	80	3rd	80	4th	-
Q	105	2nd	76	3rd	80	3rd	4th
R	129	1st	89	1st	88	1st	1st
S	111	3rd	83	2nd	85	1st	4th
T	118	3rd	80	3rd	81	3rd	-

Table II

Showing score on American Council Psychological Test, edition of 1929, quartile position in class based on test scores; first semester marks in normal school, and quartile position in the normal school class for the students entering the three and four year curricula at Plymouth Normal School in Sept. 1929.

Student	Psy. Test Score	Quartile Position	1st Semester average	Quartile Position
A	201	1st	87	2nd
B	118	4th	74	4th
C	242	1st	92	1st
D	181	2nd	83	3rd
E	102	4th	78	4th
F	110	4th	83	3rd
G	182	2nd	86½	2nd
H	100	4th	79	4th
I	157	3rd	84	2nd
J	163	3rd	81	4th
K	120	4th	76	4th
L	174	2nd	87	2nd
M	132	3rd	81	3rd
N	216	1st	91	1st
O	151	3rd	88½	1st
P	189	1st	84	2nd
Q	166	2nd	81	3rd
R	170	2nd	89	1st
S	204	1st	89	1st
T	193	1st	90	1st
U	150	3rd	81½	3rd

Table 17

Showing score on American Council Psychological Test, edition of 1929, quartile position in class based on test scores first semester marks in normal school, and quartile position in the normal school class for the students entering the three and four year curricula at Plymouth Normal School in Sept. 1934.

Student	Psy. Test Score	Quartile Position	1st Semester average	Quartile Position
A	201	1st	90	2nd
B	118	4th	74	4th
C	142	1st	95	1st
D	181	2nd	85	3rd
E	102	4th	75	4th
F	110	4th	83	3rd
G	129	3rd	85½	3rd
H	130	4th	72	4th
I	157	3rd	84	2nd
J	183	3rd	81	4th
K	120	4th	78	4th
L	179	2nd	89	2nd
M	183	3rd	81	3rd
N	215	1st	91	1st
O	181	2nd	89½	1st
P	169	1st	84	2nd
Q	156	2nd	81	3rd
R	174	2nd	81	1st
S	205	1st	89	1st
T	195	1st	90	1st
U	150	2nd	81½	3rd

Summary for Entire Class, 1928 test

Class median test score		124
Class median of average marks		82
Coefficient of correlation, entire class, Test scores and freshman scholarship.	plus	.57

Summary for Table I

1928 edition of test

Median test score for group in Table I		117
Group scholarship median.		80½
Coefficient of correlation	plus	.60

Summary for Table II

1929 edition of test

Median test for group in Table II		166
Group scholarship median		
First semester		84
Coefficient of Correlation	plus	.80

Table III

Showing correlation between psychological test marks and first semester averages as listed in Table I. Letter columns 2, 3, and 4 represent students' names and figures in column 1 indicate relative standing in psychological test. Lines connec-

ting a few letters show variation in relative standing as shown by test scores and scholastic mark.

Rank	Psy. Test	First Semester Marks	Second Semester
	Student	Student	Student
1	F	J	J
2	M	L	L
3	L	R	N
4	R	N	R
5	I	M	M
6	Q	F	S
7	B	S	I
8	C	C	F
9	J	I	Q
10	P	K	C
11	T	P	K
12	S	T	T
13	N	Q	O
14	G	O	P
15	E	E	E
16	O	G	H
17	H	B	B
18	D	H	A
19	K	A	D
20	A	D	G

tion a few letters show variation in relative popularity as given by test scores and scholastic ment.

Rank	Fov. Test Student	First Semester Student	Second Semester Student
1	T	I	T
2	M	S	I
3	I	E	M
4	R	M	S
5	I	N	N
6	O	T	S
7	R	S	I
8	C	O	T
9	T	I	O
10	P	K	S
11	T	P	K
12	S	T	T
13	K	C	O
14	P	O	P
15	I	T	T
16	O	O	N
17	E	E	S
18	D	M	A
19	T	A	O
20	A	D	S

Table III shows several examples of low correlation, four of which are explained below and indicated by lines in the table on the preceding page.

3) Examples of Low Correlation

Student J:

This student was 19th in this list and 55th in the class in psychological test scores while she was first in the class in scholarship during the first semester and third during the second semester. She is mature and reasonably self confident, has efficient study habits and is an earnest worker.

Student N:

In this case there is great lack of correlation as she is eighty-fourth in the class in test scores and fifteenth in scholarship both first and second semesters.

Apparently she did not do herself justice on the test. Practically nothing was done on the fifth or opposites test, which indicates that she became confused and did not understand what was expected. There is practically perfect correlation between her high school and normal school standing.

Student Q:

This student was thirty-fourth in the class in test scores, while in scholarship, she was seventy-fifth the first semester and fifty-seventh the second.

Table III shows several examples of low correlation, four of which are explained below and indicated by lines in the table on the preceding page.

(1) Examples of low Correlation

Student 1:

This student was 36th in this list and 89th in the class in psychological test scores while she was first in the class in achievement during the first semester and third during the 2nd semester. She is mature and reasonably self confident, has efficient study habits and is an earnest worker.

Student 2:

In this case there is really lack of correlation as she is eighty-fourth in the class in test scores and fifteenth in achievement both first and second semesters.

Apparently she did not do herself justice on the tests. Irrelevantly nothing was done on the fifth or opposites test, which indicates that she became confused and did not understand what was expected. There is practically perfect correlation between her high school and normal school standing.

Student 3:

This student was thirty-fourth in the class in test scores, while in scholarship, she was seventy-fifth the first semester and fifty-seven the second.

The discrepancy here is difficult to explain. She was in the lowest quarter of her class in high school and as far as we can ascertain the trouble is lack of self confidence. Her written work is better than her daily class work.

Student S:

This student is seventy-seventh in a class of one hundred thirty five on the psychological tests and thirty-seventh in scholarship during the first semester and twenty-seventh during the second semester. Even though she was in the fourth quarter of her high school class and the third quarter according to test scores she attained a place in the first quarter of her normal school class. She devotes much time to study, works efficiently, is very enthusiastic in temperament and attacks all problems with determination.

As we give these tests two or three days after the freshmen arrive it is to be expected that some will not do their best. Newness of conditions, nervousness, and homesickness are factors which tend to produce lower results and decrease the predictive value of the tests. A positive correlation of .57 is sufficiently high, however, to warrant their continued use with each incoming class.

The discrepancy here is difficult to explain. She was in the lowest quarter of her class in high school and for us has been ascertain the trouble is lack of mental attitude. Her written work is better than her daily class work.

Student D:

This student is seventy-seventh in a class of one hundred thirty five on the psychological tests and thirty-seventh in scholarship during the first semester and twenty-seventh during the second semester. Even though she was in the fourth quarter of her high school class and the third quarter according to test scores she attained a place in the first quarter of her normal school class. She requires much time to study, works efficiently, is very ambitious in temperament and attacks all problems with determination.

As we give these tests two or three days after the freshmen arrive it is to be expected that some will not do their best. Members of committees, fraternities, and homesickness are factors which tend to produce lower results and decrease the predictive value of the tests. A positive correlation of .6 is sufficiently high, however, to warrant their continued use with each incoming class.

4) Correlation Between Low Test Scores and Failure

W. H. Pyle of the University of Missouri, compared the college marks of the ten highest in an intelligence test with those of the ten lowest. He found the following result:

10 highest	44 hours, excellent	2 hours, failure
10 lowest	16 hours, excellent	54 hours, failure

The ten lowest have twenty-seven times as many failures as the ten highest. (6)

We find most of our failures among those from the lowest quartile of the test scores. From twenty-seven in this quartile of the class for whom complete freshman records were available, we find twelve in the lowest quarter scholastically, and twenty-two below the median. In this quarter we also find sixty per cent of our failures.

From thirty students in the upper fourth of the class whose records were available we find thirteen were in the highest quarter in scholarship, twenty-one were in the upper half, only two in the lowest quarter and no failures.

Comparing the ten highest with the ten lowest we find in the first instance only one average below eighty-three and no failures. In the case of the last

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(6) Pyle, W. H., "The Relation of Ability to Achievement", SCHOOL AND SOCIETY, Sept. 26, 1925. Vol. XXII., No. 561

4. Correlation between Ten Cities and Failure.

S. D. Pyle of the University of Missouri, compared the college marks of the ten highest in an intelligence test with those of the ten lowest. He found the following result:

In highest	46 marks, excellent	2 marks, failure
In lowest	16 marks, excellent	34 marks, failure

The ten lowest have twenty-seven times as many failures as the ten highest. (5)

We find most of our failures among those from the lowest quartile of the test scores. From twenty-seven in this quartile of the class for which complete freshman records were available, we find twelve in the lowest quarter scholastically, and twenty-two below the median. In this quarter we also find sixty per cent of our failures.

From thirty students in the upper fourth of the class whose records were available as fifty failures were in the highest quarter in scholarship, twenty-one were in the upper half, only two in the lowest quarter had no failures.

Comparing the ten highest with the ten lowest we find in the first instance only one grade below sixty-three and no failures. In the case of the last

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(5) Pyle, S. R., "The Relation of Ability to Achievement", School and Society, Sept. 24, 1921. Vol. XIII, No. 321

ten we find that seven failed one subject and only two averages were above eighty.

In reply to the question: "Is there close correlation between the results of psychological tests and normal school marks?" One school reports between plus .60 and plus .90; one over plus .50; three, close correlation; two, reasonably close; one, positive but not close enough; one, on the whole close; and two say the correlation is not high.

Pyle in his investigation compared the twenty-four students, who according to test results, were more than twenty per cent above the class average with twenty-five who were more than twenty per cent below the class average and found that while the students of the former group were sixty-nine per cent above the latter in ability, they exceeded the poorer students by only twenty-one per cent in average college grades.

In the following statement, he accounts for this discrepancy between ability and scholastic achievement; "For class grades to correspond to ability it would be necessary for every student to work up to the limit of his ability and for all other factors to be equal as well. As a matter of fact, many bright students do not work much and many students less brilliant work hard." Pyle further states: "There are likely to be more errors in low scores than in high scores, for a bright student may make a low score for any one of many

ten we find that seven failed one subject and only two averages were above eighty.

In regard to the question: "Is there some correlation between the results of physiological tests and normal school marks?" One school reports between plus .60 and plus .90; one over plus .90; three, close correlations, two, reasonably close, one, positive but not close enough; one, an the whole closer; and two say the correlation is not high.

Kyle in his investigation compared the twenty-four students, who according to test results, were worse than twenty, yet went above the class average with twenty-five who were more than twenty per cent below the class average and found that while the students of the former group rank eighty-nine per cent above the latter in ability, they exceeded the poorer students by only twenty-one per cent in average college grades.

In the following statement, to account for this discrepancy between ability and scholastic achievement: "For class grades to correspond to ability it would be necessary, for every student to work up to the limit of his ability and for all other factors to be equal as well. As a matter of fact, many bright students do not work and many students less brilliant work hard." Kyle further states: "There are likely to be more errors in low scores than in high scores, for a great deal may make a low score for any one of many

reasons, but a good score barring fraud, could be due only to ability." (7)

I believe that a high score is a good indicator of what a student is capable of accomplishing, but because of the variable and subtle factors mentioned, we cannot predict that he will achieve all he is capable of. On the other hand, low scores may be due to many factors aside from lack of ability, so do not in many cases accurately indicate the extent of ability.

Psychological test results are a valuable aid in the guidance of students and will help school authorities to judge a student's ability. They are not, however, sufficiently accurate to be used as the sole basis of admission.

No test has been devised which can adequately measure those subtle traits of personality aside from mental ability, which we expect to find in a teacher. Therefore, we cannot on the basis of a test result state positively that a candidate will or will not make a good teacher. These test results are so valuable, however, that no normal school can afford to be without such data.

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(7) Pyle, W. H., loc. cit.

tests so, but a good score certainly tends, much as low ability to spelling."[1]

I believe that a high score is a good indicator of over a student is capable of accomplishing, but because of the various and subtle factors mentioned, we cannot predict that he will accomplish all he is capable of. On the other hand, low scores may be due to many factors aside from lack of ability, so he not to very cases accurately indicate the extent of ability.

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No test has been devised which can adequately measure those subtle traits of personality aside from mental ability which we expect to find in a teacher. Therefore, we cannot on the basis of a test result state positively that a candidate will or will not make a good teacher. These test results are so valuable, however, that no normal school can afford to do without such data.

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[1] Pyle, W. H., op. cit.

5) Correlation between High School Marks and Normal School Marks.

Which is the more accurate indicator of a student's probable success or failure in a teacher training institution, psychological test scores or high school marks? We have shown that the former are reasonably reliable in at least fifty per cent of the cases. Are high school records any more reliable?

In answer to the first question, three normal schools favored high school marks; one was mildly inclined toward high school marks; three said both were needed; one had no choice; and two were in favor of psychological test scores.

In answer to the same question concerning the predictive value of the two factors for college students, Mr. J. B. Johnson of the University of Minnesota, says: "High school rank seems to be more significant than test ranks at lower levels." (8) He considers that a combined rating scale based on high school records and tests given to freshmen has a high predictive value.

Judging from a study made by D. A. Emerson of the distribution of marks in thirty high schools of Washington and Idaho for the year 1922-1923, it would

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(8) Johnson, J. B., "Predicting Success in College at Time of Entrance, SCHOOL AND SOCIETY, Jan. 16, 1926, Vol. XXIII, No. 577.

(4) correlation between high school marks and college success.

Which is the more accurate indicator of a student's probable success or failure in a teacher training institution, psychological test scores or high school marks? We have shown that the former are reasonably reliable in at least fifty percent of the cases. Are high school records any more reliable?

In answer to the first question, three hundred schools issued high school marks; one was solely limited toward high school marks; three said both were needed; one had no choice; and two were in favor of psychological test scores.

In answer to the more pointed question concerning the predictive value of the two factors for college success, Mr. J. S. Johnson of the University of Minnesota, says, "High school rank seems to ... more significant than test ranks at lower levels." (5) He concludes that a combined rating scale based on high school records and tests gives to freshmen men a predictive value.

Judged from a study made by H. A. Fawcett of the distribution of marks in thirty high schools in Washington and Idaho for the year 1924-1925, it would

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(4) Johnson, J. B., "Predicting Success in Colleges at Time of Entrance, SCHOOL AND SOCIETY, Jan. 17, 1920, Vol. XXIII, No. 577.

seem that the larger the school the more accurate would be the student's record as an indicator of probably achievement in college. (9) This study includes schools varying in size from fifteen pupils to over two thousand pupils. The results show that the smaller the school the larger the percentage of A's and B's.

Mr. Emerson makes the following summary of his investigations: (9)

Table IV Part 1

Enrollment	High School Marks A	B	C	D	E
1-50	17.8%	31.7%	2815%	18.8%	3.2%
51-100	13.2	35.7	26.8	19.6	4.6
101-200	14.3	29.1	29.5	20.5	6.2
201-400	8.2	22.3	28.5	24.9	8.6
2000 and up	5.8	26.4	30.3	30.6	10.7

Part 2

	A	B	C	D	E
Average Distribution for 30 schools	8.4%	26.4%	29.4%	26.9%	8.9%
Smallest School	43.8	27.5	17.8	8.6	2.2
Largest School	2.4	20.1	33.3	32.1	11.9

This study would indicate standards in the larger high schools much like those of the college or normal

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(9) Emerson, D. A., "The Distribution of Marks in High Schools of Varying Size," SCHOOL AND SOCIETY, Jan. 10, 1925, Vol. XXI, No. 524

were that the larger the school the more accurate would be its students' testing as an indicator of probably achievement in college. (9) This study includes schools varying in size from fifteen pupils to over two thousand pupils. The results show that the smaller the school the larger the percentage of A's and B's.

Dr. Ahern's table shows the following summary of his investigations. (9)

Table IV

Part 1

Enrollment	High School Marks				
	A	B	C	D	E
1-100	17.6%	31.7%	28.1%	18.0%	2.6%
101-200	18.5	30.7	26.5	13.5	6.4
201-300	14.8	34.1	28.3	20.8	0.0
301-400	8.3	22.5	28.3	26.9	0.0
500 and up	5.8	34.4	30.3	20.4	10.7

Part 2

	A	B	C	D	E
Average distribution for 30 schools	8.4%	28.4%	32.4%	26.4%	5.4%
Smallest School	45.5	27.2	17.4	9.8	0.0
Largest School	2.4	20.1	34.5	32.1	11.0

This study would indicate standards in the larger high schools such like those of the colleges or normal

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(9) Ahern, E. A. "The Distribution of Marks in High Schools of Varying Size." School and Society, Jan. 10, 1920. Vol. XII, No. 294

school and therefore we should expect students coming from those schools to earn marks in higher institutions similar to those obtained in high school, while those from the smaller schools with lower standards will find their marks much lower.

In the following table, Group A consists of twenty-two students who graduated from city high schools with an enrollment of over five hundred pupils. Group B represents fifteen students who graduated from small schools of less than one hundred pupils.

Group A	
Median of high school averages	84
Median normal school average for freshman year	86
Range of high school averages	74-92
Range of normal school averages	76-89
Group B	
Median of high school averages	83
Median normal school average for freshman year	81
Range of high school averages	77-91
Range of normal school averages	78-85

In the first group thirteen students, or 60%, obtained a higher average in normal school than in high school, whereas in the second group, ten students, or 67%, received a lower average in normal school.

Although this study is based on too few cases to

school and therefore we should expect students coming from large schools to earn merely higher institutions similar to those obtained in high school, while those from the smaller schools with lower standards will find their marks much lower.

In the following table, Group A represents of twenty-ten students who graduated from city high schools with an enrollment of over five hundred pupils. Group B represents a fifteen students who graduated from small schools of less than one hundred pupils.

Group A

Median of high school averages	84
Median normal school average	
For freshman year	85
Range of high school averages	74-92
Range of normal school averages	76-89

Group B

Median of high school averages	83
Median normal school average	
For freshman year	81
Range of high school averages	72-91
Range of normal school averages	70-89

In the first group thirteen students, or 65%, obtained a higher average in normal school than in high school, whereas in the second group, ten students, or 67%, received a lower average in normal school. Although this study is based on too few cases to

be significant it helps to confirm the statement previously made, that students coming from small schools will probably get lower marks in post secondary institutions than they did in high school. There are, however, some marked exceptions. Of course, the factors of adjustment and study habits enter in here as the student from the large school is at home with large groups, whereas the one who has always been in small classes has to gain self-confidence. This factor will be discussed later in connection with failures caused by lack of adjustment.

Table V compares psychological test scores, high school marks, and normal school marks in a group of twenty students from twenty different secondary schools, selected at random as to curricula and class standing. In this table column one indicates the student's name, column two her score on the American Council Psychological Test, column three is the high school average for four years, column four the quartile position in high school, column five the normal average for the freshman year, and column six the quartile position in the normal school class. In indicating quartile position, 1st means that the student is in the highest quarter of her class and 4th that she is in the lowest quarter.

to significance in order to confirm the statement previously made, that students coming from small schools will probably get lower marks in post secondary institutions than they did in high school. There are, however, some marked exceptions. Of course, the factors of adjustment and study-habits enter in here as the student from the large school is at home with large groups, whereas the one who has always been in small classes not to gain self-confidence. This factor will be discussed later in connection with failures caused by lack of adjustment.

Table 7 compares psychological test scores, high school marks, and college marks in a group of twenty students from twenty different secondary schools, selected at random as to curricula and class standing. In this table column one indicates the student's number, column two lists scores on the American Council Psychological Test, column three is the high school average for four years, column four the quartile position in high school, column five the normal average for the freshman year, and column six the quartile position in the normal school class. In indicating quartile position, let means that the student is in the highest quarter of her class and 4th that she is in the lowest quarter.

Table V:

Showing score on American Council Psychological Test, quartile position in class as shown in these scores, high school average, for four years, quartile position in high school class, first year normal school average, and position in normal school class for a group of students from twenty different high schools.

Student	Psy. Test Mark	Quartile Position in Class	High School Average for Four Years	Quartile Position In Class	Normal School Average First Yr	Quartile Position in Class
A	110	3rd	83	2nd	85	1st
B	185	1st	90	1st	83	2nd
C	146	2nd	85	1st	85	1st
D	156	2nd	88	1st	86	1st
E	132	2nd	81½	2nd	81	3rd
F	93	3rd	83	2nd	78	4th
G	39	4th	74	4th	80½	3rd
H	171	1st	86	1st	86½	1st
I	199	1st	88	1st	86½	1st
J	117	3rd	75	4th	80	3rd
K	181	1st	92	1st	88½	1st
L	212	1st	82	3rd	81	3rd
M	98	3rd	80	4th	76½	4th
N	138	2nd	82	2nd	79	4th
O	51	4th	83	2nd	78	4th
P	83	3rd	82	4th	82	Median
Q	129	2nd	87½	1st	86	1st
R	94	3rd	82	3rd	80	3rd
S	23	4th	77	3rd	77½	4th
T	197	1st	88	1st	88	1st

Table V

Showing score on Lawrence Concept Evaluation Test, quartile position in class as shown in their scores, high school average, for four years, quartile position in high school class, first year normal school average, and position in normal school class for a group of students from twenty different high schools.

Student	Per. Ques. Tests in class	Quartile Position for Ques. Tests in class	High School Average for four years	Quartile Position in High School Class	Normal School Average first yr	Quartile Position in Class
A	140	3rd	83	2nd	75	1st
B	169	1st	90	1st	85	2nd
C	160	2nd	85	1st	88	1st
D	150	2nd	86	1st	84	1st
E	138	2nd	81½	2nd	81	3rd
F	93	3rd	83	2nd	72	4th
G	79	4th	74	4th	80½	3rd
H	171	1st	86	1st	84½	1st
I	191	1st	88	1st	84½	1st
J	117	2nd	76	4th	80	3rd
K	181	1st	89	1st	85½	1st
L	112	1st	83	2nd	81	2nd
M	98	3rd	80	4th	74½	3rd
N	128	2nd	82	2nd	79	4th
O	1	4th	68	2nd	78	4th
P	89	3rd	82	4th	82	Median
Q	189	2nd	87½	1st	86	1st
R	94	3rd	82	3rd	80	3rd
S	53	4th	77	3rd	77½	4th
T	187	1st	86	1st	84	1st

This table shows fairly high correlation.

The coefficient of correlation between high school averages and normal school averages during the freshman year for the entire class entering in 1928 is plus .49.

Should a candidate who is in the lowest quarter of her high school class be refused admission to normal school? In order to get the opinion of different normal school administrators, the following question was asked: "Do you think it would improve the teaching profession if training institutions refused to accept candidates who were in the lowest quarter of their class in high school?" Nine schools answered, "Yes," and one would let other conditions determine the decision.

Many times, however, a student who is not particularly strong in scholarship has just the right temperament to get along with small children, and for that reason she will make an excellent primary or rural teacher. A girl of pleasing personality and temperamentally suited to get along with children should not be rejected solely on the ground of high school marks, but should have the opportunity to prove her worth.

This table shows fairly low correlations.

The coefficient of correlation between high school average and overall college average during the freshman year for the entire class entering in 1920 is plus .44.

Should a student who is in the lowest quarter of her high school class be refused admission to normal school? In order to get the opinion of different normal school administrators, the following question was asked: "Do you think it would improve the teaching profession if training institutions refused to accept candidates who were in the lowest quarter of their graduating high school?" Nine schools answered, "Yes," and one would let other conditions determine the decision.

Many times, however, a student who is not particularly strong in scholarship has just the right temperament to get along with small children, and for that reason she will make an excellent primary or rural teacher. A mix of physical personality and temperamentally suited to get along with children should not be rejected solely on the ground of high school marks, but should have the opportunity to prove her worth.

6) Correlation Between Scholarship Marks and Practice Teaching Marks.

This table compares the class graduating from the two-year elementary curriculum in June 1929 in scholarship marks and practice teaching marks. The first column represents the range of marks in per cent. The second column shows the per cent of graduates receiving the given mark in scholarship, while the third column indicates the per cent of graduates receiving that mark in practice teaching.

Table VI

Marks in per cent.	Proportion of graduates whose average scholarship for two years falls in each group.	Proportion of graduates whose practice teaching mark falls in each group.
91-95		11.3%
56-90	13.7%	27.5
81-85	56.3	37.5
76-80	26.3	22.7
71-75	3.7	1.0

of correlation between scholarship ratings and practice teaching marks.

This table compares the class graduating from the two-year elementary curriculum in Nova Scotia in scholarship marks and practice teaching marks. The first column represents the range of marks in per cent. The second column shows the per cent of graduates receiving the given mark in scholarship, while the third column indicates the per cent of graduates receiving that mark in practice teaching.

Table VI

Marks in per cent.	Proportion of graduates who were awarded scholarship for two years full in each group.	Proportion of graduates who were awarded practice teaching marks in each group.
91-95		11.2
86-90	13.74	27.5
81-85	35.5	37.5
76-80	30.5	22.7
71-75	6.7	1.0

Table VII

Comparison of Practice Teaching marks with Superintendent's estimate of efficiency of teachers.

Class of 1928

Practice Teaching Marks 1927-1928		Superintendent's Rating of Same Group in Service	
Mark	Proportion of class obtaining each mark.	Mark	Proportion of graduates obtaining each mark.
A	2.4%	A	14.8%
B	38.4	B	39.0
C	48.8	C	31.3
D	10.4	D	12.5
E		E	2.4

In Table VII A means Excellent
B means above Average
C means Average
D means Poor
E means Complete Failure.

Superintendents rated about fifteen per cent of the 1928 graduates below average in teaching efficiency while the training school found between ten per cent and eleven per cent of the same group below average. Local environmental conditions would easily account for this discrepancy. In fact, some teachers who were rated D last year are improving this year. On the other hand,

Table VII

Comparison of Practice Teaching marks with Superintendents' estimate of efficiency of teachers.

Class of 1929

Practice Teaching Marks 1927-1929		Superintendents's Rating of same Group in Service	
Mark	Proportion of class obtaining each mark.	Mark	Proportion of graduates obtaining each mark.
A	2.4%	A	14.6%
B	28.4	B	29.0
C	48.8	C	41.2
D	10.4	D	12.4
E		E	2.4

In Table VII: A means Excellent

B means above Average

C means Average

D means Poor

E means Decidedly Failure.

Superintendents rated above fifteen per cent of the 1929 graduates below average in teaching efficiency while the training school staff between two per cent and eleven per cent in the same group below average. Local environmental conditions would easily account for this discrepancy. It fact, some teachers who were rated 3 last year are improving this year. On the other hand,

superintendents found about fifty-four per cent of these teachers to be better than average in efficiency, while the training school so rated only forty per cent of its graduates. This indicates a truth that is frequently mentioned by critics--namely, that many girls will do better work in their own school than they do under constant supervision in practice teaching. It is their own job, and they feel the responsibility for good work.

7) The I. Q. as a Basis for Estimating Success in Normal School.

Is the intelligence quotient a reliable basis for estimating success in normal school? If the answer to the above question is "Yes," what is the lowest I. Q. that a school should accept?

In reply to the question: "Do you think it would improve the teaching profession if training institutions refused to accept students with I. Q's below 100?" nine schools answered "Yes", while one said: "Make it 90."

superintendents found about fifty-four per cent of these teachers to be better than average in efficiency, while the remaining number are rated only fifty per cent of the average. This indicates a truth that is frequently overlooked by critics--namely, that many girls will do better work in their own school than they do under constant supervision in practice teaching. It is their own job, and they feel the responsibility for good work.

7| The I. Q. as a Basis for Estimating Success in Normal School.

Is the intelligence quotient a reliable basis for estimating success in normal school? If the answer to the above question is "Yes," what is the lowest I. Q. that a school should accept?

In reply to the question: "Do you think it would improve the teaching profession if training institutions refused to accept students with I. Q.'s below 100?" nine schools answered "Yes", while one said: "Make it 90."

In Table VIII, column one represents the names of ten students in Plymouth Normal School; column two shows the I. Q.'s as estimated by group tests given while these students were seniors in high school; column three indicates the score on the American Council Psychological Test given to normal school freshmen in Sept. 1928; column four shows the high school average mark in scholarship for four years; column five indicates the average scholastic mark for the freshman year in normal school.

Table VIII

Student	I. Q.	Psychological Test Score	High School Avg. for four yrs.	Normal School Avg. for Freshman yr.
A	128	251	86%	88%
B	123	197	88	88
C	117	171	86	86½
D	112	185	90	83
E	104	97	83	81
F	101	157	88	85½
G	101	103	85	86
H	97	72	81	79½
I	94	92	73	80
J	91	51	83	78
Average	107	138	84	83½

In Table VIII, column one represents the grades of ten students in Plymouth Normal School; column two shows the I. Q.'s as estimated by group tests given while these students were seniors in high school; column three indicates the score on the American Council Psychological Test given to normal school freshmen in Sept. 1929; column four shows the high school average mark in scholarship for four years; column five indicates the average scholastic mark for the freshman year in normal school.

Table VIII

Students	I. Q. Test Score	Psychological Test Score Freshman Yr.	High School Avg. for Four Yrs.	Normal School Avg. for Freshman Yr.
A	130	401	88%	83%
B	125	197	90	80
C	119	171	86	84%
D	118	185	90	83
E	108	47	82	81
F	104	158	85	79%
G	101	103	88	80
H	99	72	81	78
I	94	32	75	80
J	91	381	78	77
Average	107	175.8	84	80.3

The coefficient of correlation here between I. Q.'s and high school mark is plus .55.

Between I. Q.'s and normal school marks it is plus .80.

If we consider a group of lower I. Q.'s we shall find the correlation to be less satisfactory.

In Table IX, we have the same data as explained in Table VIII for a group of students with I. Q.'s below 100.

Table IX

Student	I. Q.	Psychological Test Score	High School Average	Normal School Average
K	87	23	77	78
L	88	39	74	80½
M	89	43	73	77
N	88	58	77	79
O	90	83	82	82
P	91	51	83	78
Q	94	92	73	80
R	95	60	78	78
S	95	49	87	77
T	97	60	82	78½
Average	91	56	79	79

Coefficient of correlation:

Between I. Q. and high school marks plus .43

Between I. Q. and normal school marks - .22

Between I. Q. and psychological test marks plus .47

The coefficient of correlation was between I. Q.'s and high school marks of .42.

Between I. Q.'s and normal school marks it is plus .60.

If we consider a group of lower I. Q.'s we shall find the correlation to be less satisfactory.

In Table IX, we have the marks as recorded in Table VIII for a group of students with I. Q.'s below 100.

TABLE IX

Student	I. Q.	Psychological Test Score	High School Average	Normal School Average
1	67	54	77	70
2	88	39	74	80½
3	89	43	78	77
4	88	38	77	76
5	90	88	82	86
6	91	31	82	78
7	94	30	75	82
8	95	50	78	78
9	95	42	87	77
10	97	50	82	80½
Average	91	38	78	78

Coefficient of correlation:

Between I. Q. and high school marks .42

Between I. Q. and normal school marks .60

Between I. Q. and psychological test marks .38

The ten students listed in Table IX while not high in scholarship are doing passing work and meeting with average success in practice teaching.

In regard to the reliability of group intelligence scores the following is quoted from a report of the New Hampshire State Board of Education "Group intelligence tests do not give highly reliable individual scores.... In considering the I. Q. scores below 90 it should be recalled that there are some errors in the test scores, due to lack of familiarity with the type of test, failure to understand instructions, lack of interest in the test, and poor physical condition on the day of examination." (10)

The test used with high school seniors in 1928 was the Otis Self Administering Test of Mental Ability, Higher Examination, Form A. The median I. Q. for the entire state was 106 which indicates that the seniors have undergone considerable selection, as the median for the public at large is 100.

Cases can be cited to prove the fact that neither the I. Q. nor the psychological test score are always reliable indicators of normal school success. One incident will serve as an illustration. The student

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(10) New Hampshire State Board of Education, "Results of Tests in Intelligence," Aug. 1929. Report by Deputy Comm. Walter M. May--1928 and 1929.

The ten students listed in Table IX-B-1 who
high in scholarship are doing passing work and seem
to be with average success in practice teaching.

In regard to the reliability of group intelli-
gence scores the following is quoted from a report
of the New Hampshire State Board of Education
"Group intelligence tests do not give highly reliable
individual scores.... In correlating the I. Q. scores
below 95 it should be remembered that there are some
errors in the test scores, due to lack of familiarity
with the type of test, failure to understand the
directions, lack of interest in the test, and poor
physical condition on the day of examination." (10)

The test used with high school seniors in 1928
was the Otis Self Administering Test of Mental Ability,
Higher Examination, Form A. The median I. Q. for the
entire state was 100 which indicates that the students
have minimum consideration, as the median for
the nation as shown is 100.

Cases can be cited to prove the fact that neither the
I. Q. nor the psychological test scores are always
reliable indications of normal school success. One
instance will serve as an illustration. The student

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(10) New Hampshire State Board of Education, "Results
of Tests in Intelligence," Aug. 1928. Report
by Inez S. Dean. Editor E. May--1928 and 1929.

referred to was in the lowest fourth of her high school class, also in the lowest fourth of the group in psychological test score. Her average in normal school for the first year was 80.5. She failed one subject but took it a second time and passed with a mark considerably above average. She has a pleasing personality, is well liked by children, and will undoubtedly make a successful primary teacher.

We have shown that low I. Q.'s as obtained by group tests do not correlate well with scholastic marks. If native mental capacity is accurately measured it is highly probable that no student with an I. Q. below 85 could finish an ordinary high school course and do the work well. If we find I. Q.'s below 85 among high school graduates who have completed the work of approved courses such as would admit them to higher institutions, we must assume errors in test scores from which such ratings were obtained.

At Plymouth we find some students who obtain rather low marks yet few fall below the required average.

In most cases a student who has a clear record in high school, a desire to teach, and willingness to work has sufficient ability to do normal school work. Headmasters are generally careful not to encourage girls of low ability to take up teaching,

referred to was in the lowest fourth of her high school class, also in the lowest fourth of the group in psychological test scores. Her average in normal school for the first year was 4.5. She failed one subject but took it a second time and passed with a mark considerably above average. She has a pleasing personality, is well liked by children, and will undoubtedly make a successful primary teacher.

We have shown that her I. Q.'s as obtained by group tests do not correlate well with scholastic marks. If native mental capacity is accurately measured it is highly probable that no student with an I. Q. below 80 could finish an ordinary high school course and do the work well. If we find I. Q.'s below 80 among high school graduates who have accumulated the marks of approved courses such as would admit them to higher institutions, we must assume errors in test scores from which such ratings were obtained.

At Plymouth we find some students who obtain rather low marks yet few fall below the required average.

In most cases a student who has a clear record in high school, a desire to teach, and willingness to work, has sufficient ability to do normal school work. Deficiencies are generally traced not to concurrent lack of low ability as into by behavior,

and would hesitate to advise such a student to enter normal school. For these reasons we have very few students who are obliged to leave school because they are deficient in natural ability. Most of our failures can be traced to other causes.

The majority of our single subject failures are apparently due to lack of preparation. This subject is fully treated in the following section.

III. FAILURES DUE TO LACK OF PREPARATION

1) Inefficient Study Habits

With the minimum admission requirement of a full four year standard high school course, it would seem that the preparation of all candidates who are accepted should be reasonably thorough. Yet, we find many who cannot keep up with the work because of inadequate preparation. We find several each year who fail one subject or more because of insufficient background and failure to master subjects pursued in the grades or the high school.

These students with inadequate preparation have secured the required units in subject matter but have not mastered the art of study and independent thinking. On this point, Hall-Quest says: "The world at large, business and professions, are crying for independent thinkers, men and women who see a task and who can readily work toward its successful accomplishment without being watched at every step. College needs them. Pitiful is the ignorance of students in a library or in their attempt to make an original report. Inaccuracies, haste and confusion abound. But they were able to enter college simply because they had certain units of subject matter. The world smiles and sneers at

our ludicrous formalism. The time is ripe for another class of young people. Our high schools must face the need of producing individuals who, in every phase of school life, have been taught the meaning of and have been trained in the exercise of accurate, organized, independent, and practical thinking." (11)

Several experimental studies at different universities reveal the need of forming better study habits on the part of the average beginning student in a post secondary school.

In one such investigation at Des Moines University, Harriman (12) used three groups of students, two of which received instructions in methods of study and one of which did not receive such instruction. Concerning the results of this investigation, Reeves and Russell say: "The results of the experiment showed that in the course of the year the students who had not been given formal instruction in methods of study made an average gain of only eleven per cent in ability to comprehend, to organize, and to retain material, while students in the two classes where instruction in study

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(11) Hall-Quest, Alfred L., "Supervised Study," 1922, Chapter I.

(12) Harriman, P. L., "The Orientation of College Freshmen"; Peabody Journal of Education, Nov. 1925.

our traditional formalism. The time is ripe for another class of young people, who will consciously seek the goal of producing individuals who, in every phase of school life, have been taught the meaning of and have been trained in the exercise of accurate, organized, independent, and practical thinking.(11)

Several experimental studies at different universities reveal the need of further better study among on the part of the average beginning student in a good secondary school.

In one such investigation at Ohio Wesleyan University, Ammons (12) used three groups of students, two of which received instructions in methods of study and one of which did not receive such instruction. Concerning the results of this investigation, Dennis et al Gussell say: "The results of the experiment showed that in the course of one year the students who had not been given formal instruction in methods of study made an average gain of only eleven per cent in ability to comprehend, to organize, and to retain material, while students in the two classes where instruction in study

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(11) Hall-Quest, Alfred L., "Supervised Study," 1923, Chapter I.

(12) Bartlett, F. M., "The Orientation of College Freshmen," Teachers Journal of Education, Nov. 1-20.

methods had been given made an average gain of forty-seven per cent, and fifty per cent respectively." (13)

2) Study Habits

Recently some questions were given to one hundred six students in the four classes taking educational psychology at Plymouth Normal School. The questions with the students answers are given below.

1. In studying your assignments, do you often glance over a chapter hastily to get its general drift and then go back over it carefully and pick out the main points?

   Yes. 66 No. 40

2. Do you memorize significant statements?

   Yes. 48 No. 58

3. Do you read critically to find points with which you disagree?

   Usually 14 Sometimes 86 Never 6

4. Do you try to think of concrete examples to illustrate each important point?

   Usually 56 Occasionally 46 Never 3

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(13) Reeves, Floyd W., and Russell, John Dale, "Some Aspects of Current Efforts to Improve College Instruction." Bulletin of the Bureau of School Service, University of Kentucky, No. 2, December 1928.

methods had been given much an average gain of forty-seven per cent, and fifty per cent retention."[13]

2. Study Habits

Seemingly some questions were given to one hundred six students in the four classes taking educational psychology at Plymouth State College. The questions with the students answers are given below.

1. To solve your assignment, do you often change over a chapter hastily to get its content first and then go back over it carefully and pick out the main points?

Yes. 63 No. 43

2. Do you consider significant subheadings?

Yes. 49 No. 88

3. Do you read critically to find points with which you disagree?

Usually 14 Sometimes 60 Never 6

4. Do you try to think of a concrete example to illustrate each important point?

Usually 45 Occasionally 44 Never 5

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[13] Jeppes, Floyd E., and Alsaker, John Dale, "Some Aspects of Correct Activity in Learning Outline Instruction," Bulletin of the Department of Education, University of Kansas, No. 2, December 1929.

5. Can you connect points brought out in this course with experience?

Often 86 Occasionally 20

6. Do you use facts learned in this course to help in other courses?

Frequently 54 Sometimes 49 Never 3

7. Do you study supplementary material not assigned?

Frequently 14 Occasionally 83 Never 9

These answers indicate the need of instruction in efficient habits of study. An efficient student will try to connect new material with experience. He should also seek information from various sources, weigh the evidence pro and con, and use this evidence to form judgments unbiased by prejudice.

3) An Experiment in Study

An experiment was recently tried in two psychology classes at Plymouth for the purpose of securing intensive study and mastery of certain topics. Four topics, namely: Rationalization, Introversion, Logic Tight Compartment, and Prejudice were assigned about a week before the Christmas vacation with the understanding that a test would be given during the second week in the winter term. In this test the students were to be prepared to discuss one of the topics thoroughly. They were admonished to consult several

5. Can you convert points obtained on the tests
course into percentage?

Frequently 50 Occasionally 20
Never 5

6. Do you use facts learned in this course
help in other courses?

Frequently 34 Sometimes 43 Never 5

7. Do you study supplementary material not
assignment?

Frequently 14 Occasionally 60 Never 9

These answers indicate the need of instruction
in efficient basis of study. An efficient student
will try to connect any material with experience.
He should also seek information from various sources.
Only the evidence you can, and see this evidence
is fore judgments unless by great line.

21. An Experiment in Study

An experiment was recently tried in two elementary
one classes at Lincoln for the purpose of secure
intensive study and mastery of certain topics. These
topics, namely: Matriculation, Interpretation, Longe
Right Conjectures, and Fractions were assigned about
a week before the Christmas vacation with the understanding
that a test would be given during the second
week in the winter term. In this test the students
were to be prepared to discuss one of the topics
thoroughly. They were advised to consult several

sources aside from the regular texts and to be able to define the subject, quote several authorities, explain causes and effects, give concrete examples and apply the facts to school work. When the day for testing arrived one class was asked to write on Introversion and the other on Prejudice. Note books and all aids were laid aside and the students discussed the topics from the knowledge they had absorbed.

The results were very satisfactory as nearly every student showed that she had obtained material from several sources and was able to use the facts learned. The tests were rated on the following points: (1) Mastery of the subject, (2) Evidence of extended study, (3) Definitions which show understanding, (4) Appropriate concrete illustrations, (5) Application of the subject to a teacher's work.

These subjects were mastered, students had practice in organizing and using facts and found their study much more interesting.

Why could not some such methods be used to good advantage in high schools?

4) Special Subject Failures

While a few students are generally poor in scholarship and find difficulty in mastering any subject offered in a teachers training curriculum, their number is small compared to the large percentage who get low

marks or even fail to pass in a few subjects, which are in the main elementary.

A. Arithmetic

In our school arithmetic is the most troublesome subject. While not more than ten to fifteen per cent of the students have to repeat the subject, a majority show marked weakness in problem solving.

Our school is not alone in finding weakness in arithmetic as can be seen by answers to the following questions. These answers come from normal schools representing every New England state, New York and Wisconsin.

In reply to the question-- "Are many of your students weak in the fundamentals of arithmetic?"-- eight schools replied, "Yes;" one, "Probably;" one, "Some of them;" and one said, "Not weak but careless."

In answer to the question-- "Are many of your students weak in problem solving ability,"--ten schools said, "Yes;" and one said, "Some of them."

a) Typical Troublesome Problems.

A study of the results of certain tests in Plymouth (14) Normal School shows that some types of problems are particularly troublesome. Four such problems with results are given below.

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(14) American Council of Education, Psychological Test, 1929.

marks on even full or pass in a few subjects, which are in the main elementary.

A. Arithmetic

In our school arithmetic is the most unpopular subject. While not more than ten to fifteen per cent of the students have to repeat the subject, a majority show marked weakness in problem solving.

Our school is not alone in finding weakness in arithmetic as may be seen by answers to the following questions. These answers come from normal schools throughout the country, from England, Nova Scotia and Canada.

In reply to the question-- "Are most of your students weak in the fundamentals of arithmetic?"-- eight schools replied, "Yes;" one, "Probably;" one, "None or Almost;" and one said, "Not many but some."

In answer to the question-- "Are many of your students weak in problem solving ability?"--two schools said, "Yes;" one said, "None of them."

B. Typical Troublesome Problems.

A study of the results on certain tests in Plymouth (14) School Report shows that some types of problems are particularly troublesome. Some such problems with results are given below.

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(14) American Journal of Education, Reynolds and Weel, 1913.

1) A man spends 3/5 of his monthly salary for board, 1/4 for other expenses, and saves $12. What is his monthly salary?

2) How many times as fast does an airplane going 90 miles an hour travel as a vehicle that requires 6 minutes to go a mile?

3) A man owns 2/3 of a boat and sells 3/4 of his share for $750. At this rate find the value of the boat.

4) A dealer sold a horse for $175 and lost 12½%. How much money would he have gained if he had sold the horse for 10% more than the cost?

Summary of Results:

	No. taking the test.	No. attempting problem.	No. Right.	Per cent of entire class.
Problem 1	110	46	24	22
" 2	110	73	39	35
" 3	110	62	28	25
" 4	110	56	6	5½

Problem 4 is comparatively easy, requiring only a reasonable mastery of percentage, yet fifty per cent of those taking the test passed over it entirely, while ninety per cent of those who tried it failed to get the correct result.

What are the causes of such weakness in the power to use fundamental principles in the solution of problems?

14) A man spends $42 of his monthly salary for food, $14 for other expenses, and saves $16. What is his monthly salary?

15) How many times as fast does an airplane going 37 miles an hour travel as a tortoise that requires 2 minutes to go a mile?

16) A man owns 3/5 of a boat and sells 2/3 of his share for $720. At this rate find the value of the boat.

17) A dealer sold a horse for $125 and lost 1/5. How much money would he have gained if he had sold the horse for 1/5 more than he dealt?

Summary of Results:

	No. taking the test.	No. attempt-ing the problem.	No. right.	Per cent of errors.
Problem 1	110	46	34	26
" 2	110	75	39	34
" 3	110	62	25	32
" 4	110	56	6	4

Problem 4 is comparatively easy, requiring only a reasonable mastery of fractions, but fifty per cent of those taking the test passed over it entirely, while ninety per cent of those who tried it failed to get the correct result.

What are the causes of such weakness in the power to use fundamental principles in the solution of problems?

Eleven normal schools replied to the following question, referring to weaknesses in fundamentals of arithmetic, problem solving ability, fundamentals of English and ability to express themselves clearly:-

Do you consider that the weaknesses mentioned are due to:

(a) Failure to master the subject in the grades?

Yes 5 Partially 2

(b) Lack of drill in high school?

Yes 7 Lack of good teaching 1

(c) Failure to comprehend what is read?

Yes 7 No 1 Partially 1

(d) Lack of practice in reasoning?

Yes 4 Partially 1

b) Deterioration of Skill Through Disuse.

A study of the preparation of seventy-four freshmen taking arithmetic in Plymouth Normal School revealed that fifty-three had no arithmetic drill in high school. Nine have had none for six years; and nine for five years; thirty-five for four years; eight for three years; and six for two years.

The results of this study indicate that one outstanding cause of trouble is failure to conserve arithmetical skill in high school.

If a student has had no practice in arithmetic for from four to six years, lack of skill would be

merely in accordance with well known psychological laws.

On this point, Gates says: "Other things being equal the more recent the exercise the stronger the connection between stimulus and response." Also, "When a modifiable connection between situation and response is not exercised during a length of time the strength of the connection is decreased." (15)

The New Hampshire State Board of Education realizes the need of arithmetic practice in the secondary schools as the following quotation from an institute circular indicates. "Investigations have shown that a large majority of high school pupils have very little occasion to use their knowledge of arithmetic during their four year course, unless, they study commercial arithmetic. Just as one's knowledge of French will deteriorate with four years of disuse, so will one's working command of arithmetic." (16)

The Board suggests that all high schools provide two fifteen minute drill periods per week for those who need it, as shown by a standard test. It advises giving tests to all pupils at least twice a

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(15) Gates, Arthur I., "Elementary Psychology," page 284.

(16) New Hampshire State Board of Education, Institute Circular, No. 133, Jan. 1928: "Teaching the Fundamentals in Secondary Schools."

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On this point, Oates says: "Power tends only equal the more recent the erosion the attempts the connection between stimulus and response." Also, "When a multiplicity connection between stimulus and response is not experienced during a length of time the strength of the connection is decreased." (15)

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(15) Oates, Arthur L., "Elementary Psychology" page 264.

(16) New Hampshire State Board of Education, Institute Circular, No. 100, Jan. 1926: "Teaching the Fundamentals in Secondary Schools."

term.

Until our high schools adopt some plan for drill in fundamentals we shall continue to be handicapped in post secondary institutions.

It is more difficult to obtain reliable data on the other causes of weakness, which are inseparable; namely, failure to master the subject in the grades and lack of practice in reasoning.

c) Lack of Experience in Reasoning

As to training in reasoning Kendall and Mirick say: "Without preliminary systematic thinking the pupil must work blindly. For lack of training in this kind of thinking, many pupils advance through the grades deficient in the so-called "reasoning" side of arithmetic. This kind of training should begin with the first problem in the primary grades and it should be continued as long as mathematics is studied. Many lessons should be given in all grades in which many problems are studied--for practice in interpretation alone." (17)

This process of interpretation is divided into five parts. First, the pupil must read the problem and understand what it means. Second, he must state

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(17) Kendall, Calvin N. and Mirick, George A., "How Teach the Fundamental Subjects," Vol. 1, Page 170, Houghton Mifflin Co., 1915.

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tern.

Until our high schools adopt some plan for using in their curricula as small constituents to be integrated in more secondary curriculum.

It is more difficult to obtain reliable data on outcomes of teaching, which are interpretable; thus, failure to measure the impact in the classroom and lack of practice is prevalent.

c) Lack of Experience in Measuring

As to leaving it remaining Kendall and Tyler say: "Without systematic tabulating the (any) many work difficult. For lack of training in this kind of thinking, many pupils advance through the grades cultivate in the so-called "memorizing" aids of pictures. This kind of training should begin with the first problem in the primary grades and it should be continued as long as students are in school. Many lessons should be given in all grades in which many problems are studied--for practice in interpretation alone." (17)

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(17) Kendall, Percival K. and Tyler, George A., Work Texas the Fundamental Fundamentals. Vol. 1. Page 170. Houghton Mifflin Co., 1941.

in his own words what the problem calls for. Third, he must find the material that the problem gives him to work with. Four, he must determine how this material should be put together to reveal the required answer. Fifth, he should roughly estimate the probable answer as a check upon his later, more careful calculations. (18)

By questioning our arithmetic classes in the normal, we found about 30% of them familiar with this type of systematic reasoning.

My observation of elementary school work gives me the impression that insufficient attention is given to the development of systematic reasoning and problem solving technique. Until pupils are thoroughly trained to read problems carefully, interpret them accurately and apply their mathematical experience in the solution of such problems we cannot say that they have mastered arithmetic.

It will probably be a long time before we shall have mastery of even the essentials of arithmetic in the grades; and apparently high schools are rather slow to provide the drill to keep alive the pupils knowledge of fundamentals. The normal schools will find it necessary, therefore, to provide some means of meeting this obvious need.

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(18) Kendall, Calvin and Mirick, George A., Page 169.

in mind we will use the problem solver. Third, he must find the material that the problem gives him to work with. Fourth, he must determine how this material should be put together to reveal the required answer. Fifth, he should roughly estimate the probable answer as a check upon his later, more careful calculations. (18)

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By observation of elementary school work given we see increasing that insufficient attention is given to the development of systematic reasoning and problem solving technique. Until pupils are thoroughly trained to read problems carefully, interpret them accurately and apply their mathematical experience in the solution of such problems we cannot say that they have received a fair deal.

It will undoubtedly be a long time before we shall have mastery of even the essentials of mathematics in the grades, and apparently high schools are rather slow to provide the drill to keep alive the simple knowledge of fundamentals. The normal schools will find it necessary, therefore, to provide some means of remedial drill during camp.

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(18) Tendall, Calvin and Hirich, Book 1, Page 180.

The normal school can remedy this situation by providing drill classes in which all students who show weakness in arithmetic shall have the necessary opportunity to master the subject matter. Such a drill course in subject matter must be a non credit course, but should be required of all students who fail to show at least reasonable mastery of the subject, when standard tests are given.

A drill class in arithmetic is being tried out at Plymouth this year and apparently is reducing the number of failures.

B. English

Another fundamental subject in which students show weakness is English. The term "English" here implies correct usage in writing and speaking.

This subject presumably was mastered in the grades, but if it was the law of disuse must have operated with great force.

Table X shows the correlation between the scores on the Iowa Placement Test (1928) and freshmen normal school marks of the fifteen highest according to that test. It, also, shows the correlation between Iowa Test scores and American Council of Education Psychological Test scores for the same group.

The normal school can remedy this situation by providing drill classes in which all students who show weakness in arithmetic might have the necessary opportunity to master the basic skills. Such a drill course in elementary arithmetic might be a non credit course, but should be required of all students who fail to show at least reasonable mastery of the subject, when standard tests are given.

A drill class in arithmetic is being tried out at Illinois State Normal University and apparently is reducing the number of failures.

B. English

Another fundamental subject in which students have weakness is English. The term "English" includes correct usage in writing and speaking.

This subject frequently was neglected in the grades, but if it was the law of disuse that have operated with great force.

Table I shows the correlation between the scores on the Iowa Placement Test (IPT) and freshman English school marks of the fifteen Illinois schools in that test. It, also, shows the correlation between Iowa Test scores and American Council of Education Psychological Test scores for the same group.

Table XI gives the same data for the fifteen lowest according to Iowa Test scores.

In these tables column one represents the student's names; column two shows the score obtained by each student on the Iowa Placement Test in English; column three shows the respective scores obtained by the same students on the American Council Psychological Test; and column four shows the scholastic averages of these students during their first year in normal school.

Table X

Showing Iowa Test score, Psychological Test score, and first year normal school average in per cent for the ten students who received the highest scores on the Iowa Placement Test given at Plymouth Normal School in Sept. 1928.

Student	Iowa Test Score	Psychological Test Score	Normal School Avg. (1st yr.)
A	165	132	89
B	165	218	87
C	162	199	87
D	161	205	83
E	159	251	88
F	158	178	85
G	157	235	83
H	157	222	83
I	155	93	78
J	155	234	86
K	154	187	84
L	153	89	85
M	151	128	80
N	151	163	85
O	149	165	80
Median	157	187	85

Coefficient of correlation between scores on Iowa Placement Test and scores on Psychological Test plus .34

Coefficient of correlation between scores on Iowa Test and Normal School average plus .63

Table 2

Showing Iowa Test score, Psychological Test score, and first year normal school average in per cent for the 140 students who received the highest scores on the Iowa Placement Test given at Plymouth Normal School in Sept. 1926.

Student	Iowa Test Score	Psychological Test Score	Normal School Ave. (1st yr.)
A	167	138	89
B	165	118	88
C	163	139	86
D	161	135	85
E	159	131	85
F	158	138	85
G	157	132	85
H	157	128	85
I	155	98	84
J	155	124	83
K	154	127	84
L	153	88	83
M	153	120	80
N	151	132	80
O	149	121	80
Median	157	127	84

Coefficient of correlation between scores on Iowa Placement Test and scores on Psychological Test .34

Coefficient of correlation between scores on Iowa Test and Normal School average .43

Table XI

Showing Iowa Test score, Psychological Test score, and first year normal school average in per cent for the ten students who scored lowest on the Iowa Placement Test given at Plymouth Normal School in Sept. 1928.

Student	Iowa Test Score	Psychological Test Score	Normal School Average
A	76	71	79
B	74	60	78
C	71	126	88
D	69	49	77
E	66	168	82
F	65	68	83
G	61	115	81
H	60	43	77
I	60	95	80
J	58	39	81
K	58	64	82
L	53	33	78
M	52	51	78
N	34	72	80
O	27	38	77
Median	60	64	80

Coefficient of correlation between scores on Iowa Test and scores on Psychological Test plus .30

Coefficient of correlation between scores on Iowa Test and Normal School average plus .30

Table 41

Showing Iowa Test score, Psychological Test score, and first year normal school average in the case for the 100 students who scored higher on the Iowa Placement Test given at Kalamazoo Normal School in Sept. 1928.

Student	Iowa Test Score	Psychological Test score	Normal School Average
A	74	61	70
B	74	80	78
C	75	123	83
D	83	40	77
E	83	146	83
F	80	90	83
G	81	113	81
H	85	43	78
I	85	85	80
J	85	95	85
K	85	84	83
L	85	85	78
M	86	81	78
N	86	78	80
O	87	85	87
Median	80	84	80

Coefficient of correlation between scores on Iowa Test and scores on Psychological Test plus .50

Coefficient of correlation between scores on Iowa Test and Normal School average plus .33

Of the fifteen highest according to the Iowa Test, nine were in the upper quarter in the psychological test and eight scholastically; none were in the lowest quarter on psychological test scores and only one in the lowest quarter scholastically.

Of the fifteen lowest according to Iowa scores, eleven were in the lowest quarter on psychological test ratings, while only seven were in the lowest quarter and one in the highest scholastically.

The correlation between Iowa test scores and scholarship records is much higher at the upper end of the scale than at the lower, being plus .63 in the former case and only plus .30 in the latter. The correlation between Iowa score and Psychological scores is about the same in each case, namely, plus .34 and plus .30. This would indicate that the same non-scholastic factors operate in both cases to lower the predictive value of test scores at the lower end of the scale.

As the material covered in the Iowa test has little relationship to the work taken up in our professionalized courses in English we cannot predict success or failure in these courses from the test scores.

A low mark in these tests, however, does indicate need of drill in the fundamentals of English such as grammatical forms, punctuation, sentence structure and spelling.

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The correlation between Iowa test scores and scholarship records is much higher at the upper end of the scale than at the lower, being plus .65 in the former case and only plus .40 in the latter. The correlation between Iowa scores and psychological scores is about the same in both cases, namely, plus .34 and plus .30. This would indicate that the same non-scholastic factors operate in both cases to lower the predictive value of test scores at the lower end of the scale.

As the material stored in the Iowa test has little relationship to the work taken up in our professionalized courses in Education we cannot predict success or failure in these courses from the test scores.

I am sure in these tests, however, does indicate some of merit in the fundamentals of English such as grammatical forms, punctuation, sentence structure and spelling.

IV. FAILURES DUE TO LACK OF ADJUSTMENT

1) Nostalgia

In teacher training institutions as in colleges, in the professions, or in business, some individuals fail to make good because they cannot or will not adjust themselves to the environment in which they are placed.

Each year from three to five per cent of our entering students leave school the first month, giving homesickness as the reason.

Psychologically speaking, nostalgia is merely a feeling of insecurity due to lack of familiar stimuli. Burnham describes it as follows:- "For those who have had limited training and experience and have relatively few complexes of mental associations, what we call interests, the result is likely to be extreme homesickness. The feeling of familiarity and at-homeness that comes from orientation to familiar stimuli is lacking; and without the customary conditioned reflexes one has that general sense of strangeness and emptiness from lack of habitual associations, that rather unique experience, which is recognized everywhere by the term homesickness." (18)

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(18) Burnham, William H., "The Normal Mind," Page 108. D. Appleton & Co.

Many of our students come from smaller towns where social experience is somewhat limited. In most instances they are away from relatives and acquaintances for the first time. Familiar faces and well known voices are missing, while parental counsel and solace are not available. Restrictions of institutional life are new, and to some timid souls learning new ways seems an insurmountable task.

A great majority of the students soon form new acquaintances, develop new interests within the school, form new conditioned responses as a psychologist would say, thus becoming functioning members of the new group. They feel at home in their new environment.

To explain why some give up rather than to make the necessary adjustments is a difficult task for we have no opportunity of becoming intimately acquainted with them. We know, however, that there are certain factors which are more or less common to all these cases; and a few general principles explain most of the difficulty.

These principles can be illustrated by concrete cases:

Many of our students come from smaller towns where social experience is somewhat limited. In most instances they are away from relatives and acquaintances for the first time. Familiar faces and well known actions are missing. While material comfort and amenities are not available. Restrictions of institutional life are new, and so more than could imagine how very needs an institutionalized life.

A great majority of the students soon find new associations, develop new interests within the school, form new meaningful responses in a non-monetary world day. Some become "institutionalized" members of the new group. They feel at home in their new environment.

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These principles can be illustrated by comparing cases:

2) Dependence on Parents

The following case illustrates well the fact that some people are unwilling or unable to face new situations because their parents have never allowed them to become independent.

This girl lived on a farm somewhat remote from any social life. She graduated from a small high school in a class of four. She had been away from home very little and it required considerable persuasion on the part of teachers and friends to win the parent's consent for her to attend normal school. As she started from home the parents were in tears and told her they hoped she would be so homesick that she would be glad to come back. In less than two weeks she did go home.

Two factors stand out in the above case; namely, lack of social experience and desire of the parents to keep their daughter a dependent child. In this particular instance the second cause is very evident.

In regard to such an attitude on the part of parents, Thom says: "Pampered through youth many men and women have their parents to blame for failure. Those who wish their children to succeed must help them throw off the desire for protection, not keep them from establishing their independence." (19)

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(19) Thom, Douglass A. in "Why Men Fail," Introduction to Chap. I. Fishbein and White; 1928. The Century Co.

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In regard to such an attitude on the part of parents, Thom says: "Sometimes because youth may have one mean have their parents to blame for failure. These children, their ambition to succeed must help them throw off the desire for protection, but keep them from establishing their independence." (19)

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(19) Thom, Douglas A. in "Why Men Fail," Information to Chap. I. Fletcher and Sniter, Inc. The Century Co.

3) Lack of Educational Interest

It is well known that interests other than school work frequently lead to discontent, and the point is illustrated by the following case:

This girl had been a good student in high school but was not socially a good mixer, in fact she was somewhat of an introvert. She was interested in a young man in her home town who was uneducated, but her parents and friends were not anxious for her to marry, so hoped to divert her interest by sending her away to school. She entered normal school but after six weeks refused to remain longer although her parents urged her to do so.

There seemed to be in this case lack of real desire for an education and other obvious interests which were stronger for in a short time she married the man of her choice. Lack of social experience was also a factor in this case.

4) Temperamental Maladjustment

The two cases just mentioned represent those students who leave before they have given themselves a fair trial. There are others who show no signs of homesickness, yet who seem unable to adjust themselves to the requirements.

Such people are frequently in trouble for break-

3). Lack of Educational Interest

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This girl had been a good student in high school but was not actually a good mixer, in fact she was somewhat of an introvert. She was interested in a young man in her home town who was unemployed. Her parents and friends were not anxious for her to marry, so hoped to divert her interest by sending her away to school. She entered normal school but after six weeks returned to Toronto despite although her parents urged her to do so.

There seemed to be in this case lack of real desire for an education and other objective interests which were stronger for in a short time she married the lad of her choice. Lack of social experience was also a factor in this case.

4) Temperamental Maladjustment

The two cases just mentioned represent those students who leave College than have given themselves a fair trial. There are others who show no signs of mental lapses, yet who seem unable to adjust themselves to the requirements.

Such people are frequently in trouble for break-

ing rules, for being unwilling to assume any responsibility, or for failure to do the work, not because it is hard, but because they cannot see the need of working.

Usually two or three leave each year because they cannot adapt themselves to the necessary reasonable restrictions which are a part of the life in any higher institution where students live together in large groups.

The case discussed below seems to be one of temperamental maladjustment.

This girl came from a good home but apparently dominated her parents to some extent. She could do good work in school if she cared to exert the effort. She had no particular respect for school rules and in the training school did not react favorably to criticism. She could get along with neither pupils nor critics. Finally her attitude became so anti-social that she could not continue in the school.

5) Inferiority Complexes as Causes of Failure

Vaughan considers the types of defects which cause feelings of inferiority under four categories--physical, intellectual, moral and social. (20)

As the students in teacher training institutions

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(20) Vaughan, Wayland F., "The Lure of Superiority," Chapter III, 1928, Henry Holt & Co.

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have passed physical examinations, we shall have to ignore the physical causes, and as they have come to us highly recommended and with character properly vouched for, we have no means of tracing moral defects. This study is therefore confined to those cases of inferiority having their genesis in some feeling of inadequacy based on intellectual or social shortcomings, either real or fancied.

Inferiority feelings are probably the basic cause of much mediocre accomplishment on the part of students who are capable of doing high class work. Such students do not fail in the sense that they have to repeat courses or leave school; but many of them would become failures if they were not discovered in time and helped in the process of adjustment.

In replying to a question concerning the causes of inferiority complexes in normal school students the schools showed considerable difference of opinion. Four gave lack of scholastic preparation as the first cause, four others placed failure in studies first, while two laid it chiefly to defective personality. Several mentioned emotional instability as a strong contributing cause.

Analysis of these answers shows that in the minds of administrative officials in typical normal

school situations the outstanding causes of the development of feelings of inferiority are: 1. lack of scholastic preparation, 2. failure in studies; and 3. emotional instability.

Failure in studies is quite closely related to lack of scholastic preparation and in the opinion of several executives lack of ability is the basis of the first two.

Thus it would appear that a majority of the cases of inferiority complexes in normal school can be traced to intellectual defects, and such defects are in general those which originate in causes of failure already considered, namely; lack of ability and lack of preparation.

Some students have never had any training in music, and when they find themselves working in the same class with others who know the subject well they develop feelings of inferiority which greatly inhibit effort. Most failures in first semester music can be accounted for in that way.

In other cases a student feels herself lost in a new subject and becomes hopelessly bewildered, as shown by the following case from a class in educational psychology.

For the first nine weeks of the course this student seemed to stand only a little below the average of her class in psychology but her work grew

school situations are outstanding causes of the development of feelings of inferiority are: 1. lack of good habits; preparation; 2. failure in studies; and 3. emotional instability.

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In other cases a student feels a great lack in a low subject and becomes moderately dissatisfied, as shown by the following data from a class in elementary school a pupil.

For the first nine weeks of the school year this student appears to stand only a little below the average of her class in scholarship but see more

constantly poorer until she was unwilling to recite and assumed an attitude of indifference. Of course the result was failure. With this failure came a hatred of the subject which greatly handicapped the student in making up the work the next year. She finally passed with a mark of 70.

As a result of this failure and a rather low average in other subjects which made it uncertain whether the student could remain in school or not, she developed an inferiority complex and as a result, she did not reach maximum achievement during the remainder of her course. I talked with this student and she said that she was afraid to recite in the presence of others who knew the subject better than she did. She was also nervous in written tests which made the difficulty worse.

After observing this case and talking with the student I decided that the trouble had its origin in the fact that the student met some difficulty early in the course. Her natural reticence caused her to say nothing but to trust that understanding would eventually come. Instead of understanding, however, came greater haziness and soon the subject was like something in an unknown sphere. She was hopelessly lost, a feeling of insecurity quickly led to inferiority and the development of a defense mechanism in the form of an indifferent attitude.

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6) Maladjustment due to Failure of Teachers to Appreciate Student Difficulties.

If all students came to us with an equal degree of preparation, an equal amount of native capacity, identical interests and attitudes, and the same social experience in an equal degree of intensity, it would not be necessary for teachers to consider the problem of student adjustment. The fact is, however, that such an ideal situation can never be, therefore, teachers must face the question honestly and must reach the conclusion that in some instances they may be a contributing cause of failure. Instead of seeing each student as an individual, teachers many times try to instruct the group "en masse," expecting each individual to absorb what they have to offer with an equal degree of avidity.

In a study previously referred to in this thesis, we found that normal students have received their early education in schools of various sizes and we may no doubt draw the conclusion that there has been considerable variation in the efficiency of earlier instruction. Some are in the habit of being in large classes and working with large groups, while others feel very self-conscious in surroundings and circumstances entirely new. Teachers must consider these facts and govern their presentation

3) Maladjustment due to failure of teachers to Appreciate Student Difficulties.

If all students were to be with an equal degree of preparation, an equal amount of native capacity, intelligence interests and attitudes, and the same social pressures in approximal degrees of intensity, it would not be necessary for teachers to consider the problem of student adjustment. The fact is, however, that such an ideal situation can never be, therefore, teachers must take the situation correctly and must reason the conditions that in some instances they may be a contributing cause of failure. Instead of basing such measure on individual, teachers may times try to identify the group "an mass," attempting each individual to assure that they have in other words equal degree of validity.

In a study previously referred to in this thesis, we found that normal students have received their early education in schools of various sizes and we may be least sure the consideration that there has been considerable variation in the efficiency of earlier instruction. Some are in the habit of going to large classes and working with large groups, while others feel very ill-at-ease in surroundings are altogether strangely new. Teachers must consider these facts and provide their presentation

accordingly.

Formalism in instruction can be found in normal schools as well as in colleges. This is to be regretted as future teachers should learn from environment as well as from instruction that they are to teach children, not subjects. Dorsey discusses the attitude of some teachers in the following passage: "Choctaw is one of a few hundred languages I never studied. Suppose I want to learn it and have the time. I report to the head of the department. Will he smile with joy at the chance to teach this young idea how to shoot with a new tongue? Maybe; but my guess is that he will try to look learned, and end up a solemn discourse on the value of Choctaw with a 'but it is a very difficult language and you must be prepared'--to have a tooth knocked out.

"Result: School teachers taking themselves too seriously and behaving like medicine men; text books as solemn as mediaeval dissertations on theology and metaphysics, and to a boy or girl of 1929 athirst to learn as inviting as crystallography." (21)

It seems to be true that there are teachers who take themselves too seriously. While they do not

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(21) Dorwey, George A., "Hows and Whys of Human Behavior," Page 235 Harper & Brothers, 1929.

accordingly.

Parallels in instruction can be found in normal schools as well as in colleges. This is to be regretted as future teachers should learn from curriculum as well as from instruction that they are to teach children, not minerals. Dorsey discussed the activity of some teachers in the following passage: "Chemistry is one of a few useless languages I never studied. Suppose I want to learn it and have the time. I repair to the head of the department. Will he write with joy at the chance to teach this young idea how to shoot? Not a few tongues. Maybe, but my guess is that he will try to look learned, and end up a lecture discourse on the value of Chemistry with a 'but' it is a very difficult language and you must be prepared--to have a book hooked out.

"Result: School boys are taking themselves too seriously and behaving like little men; they begin as solemn, or malevolent dissertations on Chemistry and astronomy, and to a boy or girl of 16 science is taught as involving as crystallography." (18)

It seems to be true that there are teachers who lack themselves and seriously. While they do not

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(18) Dorsey, George A. "Some Evil Ways of Human Behavior." Open Court Reprint A Monthly, 1929.

intend to discourage students, their attitude of aloofness prevents that complete harmony between instructor and instructed which is necessary for best results.

Conclusions:

Parents in keeping children dependent upon them too long lay the foundation for future failures and some of our failures and maladjustments in normal school are due to this cause.

Inferiority feelings among students can be traced to feelings of insecurity produced by lack of social experience and real or fancied intellectual defects.

Teachers should not take themselves too seriously but should consider it part of their duty to understand their students and to help these students adjust themselves, also to help them strengthen their weak points and make the most of their native capacities.

V RELATIONSHIP BETWEEN PERSONALITY AND NORMAL SCHOOL SUCCESS

1) Schoolmen Consider Personality Important

In section II of this thesis I have indicated that factors other than native intelligence and scholastic achievement enter into the success of a teacher. These subtle non-scholastic factors are generally considered as part of that almost undefinable something termed, "Personality."

In order to ascertain what qualities school administrators expect to find in teachers, the following question was sent to fifty superintendents: "Will you list what you consider the four or five most important qualifications of a beginning teacher?" Thirty-nine replies were received and, as we should expect, there was a great variety of opinions. In fact, there were thirty-five different qualifications suggested.

In some respects, however, considerable unanimity is evident. Twenty-four mentioned personality as one of the four or five qualifications, while fifteen placed it first. Eleven include character, but only three place it first on the list. This is not strange for character is a combination of habits, attitudes and ideals and these

are very closely related to personality.

It is somewhat more surprising to find only eleven including scholarship on the list and only two placing it at the head. Ability to discipline is placed at the head of the list by five. Perhaps this can be explained by saying that superintendents generally consider graduation from a teacher training school as evidence of sufficient scholarship to carry on the work in a position for which the school recommends the candidate. It is also probable that they consider disciplinary power as an attribute of forceful personality.

2) Meaning of Personality.

Personality is as difficult to define and explain satisfactorily as is electricity. We may say that it ever makes us aware of its presence, yet, it is something subtle and elusive. Perhaps as good a definition of personality as we can get is to call it; that which identifies a person as an individual.

Allport considers the main sources of personality as native endowment and acquired habits.(22) First he would consider a normal equipment of physical and anatomical characteristics, then he would add native intelligence; motility, temperament,

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(22) Allport, Floyd H., "Social Psychology," Pages 101-103 Houghton Mifflin Co., 1924.

are very closely related to personality.

It is possible more surprising to find only slightly intelligent individuals on the first and last two lines of the list. Ability to discipline is placed at the head of the list by five. Perhaps this can be explained by saying that extroversion generally elicits evaluation from a teacher-trainee equal as evidence of sufficient scholarship to entry on the work in a position for which the second teacher is the candidate. It is also probable that many students discriminatory power as an attribute of forceful personality.

3) Meaning of Personality.

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(52) Ali Mohammad H., Social Psychology, Lahore 1961-1962. (Sheikhum Trifria Co., Lahore.

self-expression, and sociality.

3) Compensation Changes Personality.

It is hard to estimate the extent to which anatomical deformities and physical defects may or may not handicap the development of personality for we have to reckon with the factor of compensation.

"Nature is so resourceful that where its powers fail in one direction other means of adaptation are made available," (23) says Vaughan.

Vaughan further says: "Physical deficiency is a handicap that arouses the individual to seek a remedy of some sort. Theodore Roosevelt converted his sickly body into a powerful physique. Harry Hillman, the Dartmouth track coach, has a boy who is able to clear five feet eleven inches in the running high jump. This feat is especially remarkable because one of his legs is practically useless." (24)

The above illustrations indicate that physical defects, while they are handicaps, are not insurmountable difficulties.

4) Intelligence Affects the Development of Personality.

Intelligence while sometimes spoken of as some-

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(23) Vaughan, Wayland F., op cit. Page 71

(24) Page 80

self-expression, and sociality.

3) Congenital Causes Personality.

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[23] Vaughan, Thelma Z., op cit. Page 1.

[24] Page 20

thing by itself, apart from personality, is shown by Allport to be the basis of personality because it affects the other qualities, such as emotional development, motility, self-expression and adaptability.

Allport considers under intelligence, problem solving ability, memory, capacity for observation, constructive imagination, soundness of judgment and general adaptability. (25)

Thus the term intelligence as used by Allport is much broader than the term used by the public generally to signify mere abilities for scholastic achievement.

Among the various non-scholastic traits which superintendents include in their meaning of personality and which were mentioned in answer to the question were: interest, initiative, enthusiasm, energy, sincerity, judgment, adaptability, self-confidence, tact, ambition, refinement, loyalty, power to make friends, sympathy, love of children, and industry.

While scientists and philosophers may disagree as to the exact conception of personality, school men are well satisfied that personality for a teacher, means; pleasing appearance, agreeable manners, energy, initiative, adaptability, ability to get along with

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(25) Allport, Floyd H., op. cit. Pages 104-105

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While educators and philosophers may disagree as to the exact concept of personality, school men are well satisfied that personality for a teacher, means: pleasing appearance, agreeable manners, energy, initiative, adaptability, ability to get along with

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(86) Allport, Gordon W., op. cit. Pages 104-105

people, and power to lead children. They also expect poise, self-confidence and professional loyalty.

5) Correlation Between Measured Intelligence and Teaching Success.

Sorenson indicates that the low correlation between measured intelligence and teaching success is probably due to unreliability of teacher rating. (26)

I am inclined to believe, however, that the group intelligence tests now used do not measure those subtle factors, which are so vital to teaching success. They may be good measures of ability for scholastic achievement, but scholastic achievement alone never did and never can make a teacher.

Pyle's conclusion would seem to justify the above statement. He says: "We find that intelligence as determined by various types of psychological experiments is a just-barely-perceptibe factor in teaching success---such laboratory experiments as psychology has so far devised for measuring intelligence can be of little service in predicting teaching success. The only sure way to determine whether one can teach is

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(26) Sorenson, Herbert, "Why Teaching Success Does not Correlate with Measured Intelligence." Educational Administration and Supervision, November, 1929.

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(23) Commager, Dorothy. "Why Teaching Success Does
Not Correlate with Mental Intelligence."
Educational Administration and Supervision.
November, 1926.

to try him." (27)

Mr. Frasier agrees with the above conclusion and further states: "The level of intelligence of the whole group is such that we may conclude that normal students are a select group as to intelligence. Then we may say that given enough intelligence to graduate from high school, further intelligence seems to have little effect upon student teaching success." (28)

6) Failures in Training Due to Weak Personality.

A study of the training marks at Plymouth for two years shows that in nearly every case where the mark is D, the student receiving that mark had a weak teaching personality.

A few cases will show that these poor marks are due more to non-scholastic factors than to scholarship weakness.

Case I

This girl of average scholarship and a good worker, trained in primary grades and received a training mark of D plus. While this is not failure it is a low mark.

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(27) Pyle, W. H., in Educational Administration and Supervision, Oct. 1927, quoted by Clark M. Frasier in Educational Administration and Supervision, Nov., 1929, Page 628.

(28) Frasier, Clark M., "Intelligence as a Factor in Determining Student Teaching Success." "Educational Adm. and Supervision," Nov. 1929, Pg. 629

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(27) Ryle, W. W., An Experimental Scholarship and Observation Test, 1927, quoted by Frank W. Frasier in Educational Administration and Supervision, Nov., 1930, Page 820.

(28) Frasier, Clare M., "Intelligence as a Factor in Determining Student Teaching Success."

Educational Adm. and Supervision, Nov., 1927, Pp. 629

She was rated low in initiative, responsibility, mastery of subject matter, and use of English. The chief criticism was lack of initiative and self-confidence. It was also very evident that she lacked enthusiasm.

Case II

This girl was low in scholarship and received a low D in training. She was considered unsatisfactory in executive ability, responsibility, mastery of subject matter, motivation, organization and control. She showed no evidence of enthusiasm or force and was very slow to grasp a situation. Her chance of success in teaching is very small.

Case III

This girl was conscientious and an average student. In training, however, she lacked force and enthusiasm, could not control a class, and was lacking in originality. Her appearance was that of a person with an inferiority complex. She started teaching in a one room rural school but was obliged to give up her position before Christmas. This was plainly a case of failure caused by defects in personality.

Case IV

This student was rated D in training. She

She manifested low in motivation, psychomotor anatomy of subject matter, and lack of quality. The other criterion was lack of initiative and self-confidence. It was also very evident that she lacked self-esteem.

Case 72

This girl was low in sociability and reported a lack in training. She was rated responsibility-inferior in relationship with her responsibility. Memory of subject matter, motivation, organization and control. She showed by evidence of sociograms of force and was very sick to assert a situation. Her mode of behavior in operation is very small.

Case 731

This girl was considered slow in several subject. In training, however, she is just above and endurance, could not score i o class, and was lacking in motivation. Her appearance was good or - personality an intelligent one. The mistress considered a non rood model school but was called to give up her position because of illness. She was definitely a case of initiative influence to deform in organization.

Case 74

This student was rated 7 in training. She

lacked enthusiasm, was awkward in manner and could not seem to improve. She was untactful and could not meet people well. She has considerable determination, however, and seems to be meeting with fair success in a rural school.

7) Personality a Strong Factor in Obtaining the First Position.

In order to discover if possible what student records, available at the normal school, are of greatest value to the superintendent in choosing his beginning teachers, the following question was submitted to fifty superintendents. Thirty-eight replies were received, distributed as indicated:

Which of the following factors do you consider most important in selecting an inexperienced teacher?

(a) Intelligence as measured by standard psychological group tests. (7)

(b) Scholarship as indicated by normal school marks. (8)

(c) Success in practice teaching as shown by training record. (23)

The twenty-three superintendents who consider the record in training as most significant would hesitate to take a teacher whose mark in practice

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teaching was D. Most of the D marks as already shown result from such outstanding defects in personality as lack of initiative, lack of enthusiasm, lack of motivation, and inability to control and hold the interest of a class.

It is evident, therefore, that the majority of superintendents do not consider measured intelligence and scholarship alone as sufficient equipment for a teacher. The non scholastic traits of personality are determining factors in the selection of inexperienced teachers.

What qualities do teacher training institutions consider of paramount importance in recommending a candidate? In order to answer this question eleven normal schools and teachers colleges were asked to rate the following qualifications in order of their importance when considered in recommending a beginning teacher. Their replies are indicated in the table below.

	1st	2nd	3rd	4th	5th
(a) A good personality	4	3	-	-	1
(b) Good scholarship	-	3	2	2	1
(c) A good record in training	4	-	2	-	2
(d) Initiative & self-confidence	-	1	4	3	-
(e) Cooperation with the school	-	1	-	3	4

Three schools considered (d) and (e) as part of (a) and therefore, did not rate them. The same three

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considered (a) (b) and (c) as essentials and two of them rated these qualities equally important. One placed the emphasis on personality, if considered in a broad sense and including (d) and (e).

From these discussions we may conclude that if a person hopes to succeed in teaching she must not only have knowledge to impart but must have the power to lead others out and impart knowledge to them. She must possess initiative and enthusiasm, must conquer her inferiority complexes and face her work with self-confidence. Social intelligence is necessary, as well as, mental capacity, and no unsympathetic, self-centered introvert can really succeed as a teacher even though his scholastic rating may be A.

8) Success in Training as Indicative of Success in Teaching.

Does a successful record in training indicate the probability of success in teaching? This can perhaps best be answered by mentioning some actual cases.

Case I

This girl failed in three subjects during her first year in normal school and the question of dropping her was seriously considered. However, she succeeded in making up her deficiencies during the

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second year and was granted a diploma. In training she was very successful, obtaining a B rank. Her rating was A in; cooperation, responsibility, success in securing pupil purpose and mastery, control, and supervision of play. She is now successfully teaching a rural school, is well liked by pupils, parents and school authorities and is deeply interested in her work. This is a plain case of the triumph of personal qualities. Her scholastic difficulties were due to lack of thorough preparation and to some extent, the result of lack of adjustment, as she was handicapped by feelings of inferiority. She found herself and gained self-confidence during her second nine weeks of training in a remote rural school, where she was thrown largely on her own resources.

Case II

This girl was in the lowest quarter of her class according to psychological test scores and the lower half scholastically. Her training record was high average. Her superintendent reports that she is a very successful rural teacher, well liked by the pupils and a good disciplinarian. She is a good mixer and is, therefore, a helpful member of the community.

9) Early Observation in the Training School Desirable.

Since success in training apparently correlates more closely with success in the field than scholar-

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Since success in training apparently correlates more closely with success in the field than scholar-

ship does, and since superintendents desire a teacher who understands children and knows how to guide them and teach them, it is important that normal students begin to observe the reactions of children as early in their course as possible. It would be highly desirable during a student's first year in normal school for her to have a course in, "Observation and Participation," such as is offered in the State Normal School at New Haven, Connecticut. The catalogue announcement of this course is as follows:- "This course is designed to serve as a specific preparation for student teaching. The student will observe and participate in the activities essential to the successful operation of the elementary school. The student will progress gradually from observation to participation in various classroom activities, such as keeping of records, weighing children, playground supervision, lesson planning, and limited group teaching." (29)

Such a course should help a student to discover her own likes and dislikes, should make the courses mean more in relation to their practical utility and would doubtless cause the early development of a professional attitude.

Such participation in the actual work with children, even though limited would help the school in discovering early whether a student possessed the

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(29) State Normal School, New Haven, Conn. Catalogue, 1928-1929

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Without such early participation in practice teaching, we may sacrifice some good teaching material because of low marks the first year. We also are obliged to wait until the second year before discovering that some students have wasted a year in studying for a profession in which they cannot make a success.

Early discovery of teaching possibilities would be beneficial both to the State and to the student herself.

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VI. SUMMARY

In this thesis, any normal school student who has insufficient scholastic ability, teaching skill, and personality to warrant the expectation of success in teaching any school is considered a failure. It also seemed wise not to ignore temporary failures in special subjects due to inadequate preparation in the grades and the secondary school.

Information obtained from several normal schools and from forty superintendents as well as that taken from the scholastic records and training records at Plymouth Normal indicates that the majority of failures may be traced to either, lack of ability, lack of preparation, lack of adjustment, or defects in personality.

I realize that it is impossible to attribute an individual failure to any one definite cause as data is not available, and many factors must be considered.

The following summary, therefore, is merely an approximate estimate of the proportion of failures at Plymouth Normal School during the last three years which may be attributed to the causes listed:

Lack of Ability	20%
Lack of Preparation	35%
Lack of Adjustment	30%
Defects of Personality	15%

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As there are many non-scholastic factors which contribute to teaching success it is very difficult

to determine by any available measures which applicants for admission to a teacher training institution should not be accepted. Educators will agree that a person must possess a certain amount of natural ability in order to carry on post-secondary work successfully. It is almost impossible, however, to determine in advance whether a given applicant has that necessary minimum of native capacity.

The measures most commonly used to determine fitness for normal school work are the candidates high school record and standard psychological tests. Information received from several normal schools indicates that authorities differ as to the relative reliability of these measures. Studies previously made in universities indicate that the high school record has greater predictive value than low test scores; and our studies at Plymouth tend to confirm this statement. Our studies show high correlation between test scores and scholastic standing in the case of groups where test scores average high as may be seen by referring to Table II, page 20.

In spite of admission standards which are reasonably rigid, some students manage to get into the normal schools without possessing sufficient scholastic background to pursue advanced work efficiently. Some have not learned how to study and others are conspicuously weak in the fundamental skills.

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An investigation of study habits among Plymouth students indicates the need of greater efficiency in understanding and making use of significant facts and in organizing material. They also need to study more critically. Other experimental studies at different universities reveal need of forming better study habits on the part of the average beginning student.

We find that a majority of our students are weak in arithmetic, especially in solving problems. In answer to a question regarding problem solving ability, ten other normal schools found a similar weakness. As many of these students have had no arithmetic for from three to six years before coming to normal school, at least one cause of the weakness mentioned is the weakening of mathematical skill through disuse. Most of the students questioned show no evidence of training in reasoning and interpretation of problems. There is considerable evidence that arithmetic is not thoroughly mastered in the grades.

We also find some trouble in the power of our students to use correct English although there are few actual failures in our English courses. The correlation between scores on the Iowa Placement Test in English and general scholarship varies all the way from plus .30 for a group with low test scores to plus .63 for a group with high test scores.

From three to five per cent of our entering students leave school each year because of homesickness or discontent resulting from failure to adapt themselves.

An investigation of study habits among Plymouth students indicates the need of greater efficiency in understanding and making use of significant facts and in organizing material. They also need to study more critically. Other experimental studies at different universities reveal need of forming better study habits on the part of the average beginning student.

We find that a majority of our students are weak in arithmetic, especially in solving problems. In answer to a question regarding problem solving ability, ten other normal schools found a similar weakness. As many of these students have had no arithmetic for from three to six years before coming to normal school, at least one cause of the weakness mentioned is the weakening of mathematical skill through disuse. Most of the students questioned show no evidence of training in reasoning and interpretation of problems. There is considerable evidence that arithmetic is not thoroughly mastered in the grades.

We also find some trouble in the power of our students to use correct English although there are few actual failures in our English courses. The correlation between scores on the Iowa Placement Test in English and general scholarship varies all the way from plus .80 for a group with low test scores to plus .03 for a group with high test scores.

From three to five per cent of our entering students leave school each year because of homesickness or discontent resulting from failure to adapt themselves.

A study of several cases indicates that the underlying causes are; over dependence on parents, lack of social experience, and temperamental maladjustment.

Several students each year fail to attain all that their ability warrants because of inferiority complexes. Investigations of such cases at Plymouth and information obtained from other schools indicates that the outstanding causes of such inferiority feelings are (1) lack of scholastic preparation (2) failure in studies (3) emotional instability.

Investigation also indicates that some cases of maladjustments could be prevented if teachers would take more pains to understand student difficulties and give encouragement where encouragement is needed.

Sixty per cent of the superintendents who, in reply to the questionnaire mentioned on page 13, listed the four or five most important qualifications of a beginning teacher, included personality, while 40% placed it first on the list.

Personality as here used by the superintendents covers such traits as; pleasing appearance, agreeable manners, energy, enthusiasm, initiative, tact, poise, self-confidence, adaptability, and ability to get along with people.

In answering the questionnaire 60% of the superintendents rated success in practice teaching as shown by mark in training, above scholarship as shown by school marks , and intelligence as shown by psychological test

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In answering the questionnaire 80% of the superintendents rated success in practice teaching as shown by work in training, above scholarship as shown by school marks, and intelligence as shown by psychological tests

scores. Success in practice teaching seems to be the most reliable single indicator of ability to teach and control children.

Poor marks in training indicating failure in practice teaching are found to result from lack of initiative, lack of self-confidence, lack of enthusiasm, failure to motivate the work and inability to control the class and hold interest.

A good mark in training is necessary if a beginning teacher hopes to secure a satisfactory position and such a mark is greatly influenced by those traits of personality which are a necessary part of the equipment of a successful teacher.

VII. CONCLUSIONS AND RECOMMENDATIONS

State legislatures should allow more money to the normal schools in order that they may maintain faculties consisting of about half men with considerable teaching and supervisory experience, and the other half women who are thoroughly familiar with actual practical work in the elementary grades. Critic teachers should have considerable successful experience in teaching children before attempting to train cadets.

Neither psychological test scores nor high school records have sufficient predictive value to warrant their use as the sole determining factors in the rejection of an applicant for admission to a normal school. Some students who give little promise of success when judged by these criteria make very successful teachers, while others who stand high make dismal failures. We have no objective measure for those subtle non-scholastic traits which seem to be so strongly instrumental in determining teaching success. Any graduate from a standard high school course, who has a pleasing personality, shows determination and willingness to work, and presents evidence of stable character, should be given a chance to prove herself in a teacher training school, if she thinks she really wants to teach. It seems to me unwise to drop those students who happen to fail in one or two subjects during their first sem-

ester in normal school if they show promise of eventual success. Such failures may be, and many times are, largely due to lack of adjustment, and the student will later push on and make a successful teacher.

It would aid the normal schools very much if some effort toward vocational guidance were made in each high school and those who are obviously unfitted to become teachers and those who have no real serious interest in teaching are urged to prepare for some other occupation.

Another need in teacher training institutions may be expressed by the term progressive adjustment. This means that faculty members should strive to understand the weaknesses and needs of each student. They should encourage where encouragement is needed; give assistance where assistance will strengthen a student's confidence and power, and lead each individual toward the goal of her maximum accomplishment.

If a student is not getting along well a study of her case should be made. This study should include her high school record, psychological test scores, normal school marks, and any other available data which will lead to a more complete understanding. All possible means should be used to discover the causes of her difficulty and help her to adjust herself. If it is found that adjustment cannot be made and that future

success in teaching is doubtful this student should not be summarily dropped, but assisted to find some other occupation better suited to her needs.

It is highly desirable that such subjects as arithmetic, elements of English, and silent reading, be mastered in the grades, and that such fundamental skills be kept alive through high school. Perhaps all is being done along this line that can be expected.

Whatever the reason may be, it is evident that a large number of students enter normal school weak in essential skills. I suggest that such students be required to take a none credit course in arithmetic; or grammar and language forms as the case may be, before taking the professionalized credit courses in those subjects.

It would also be desirable to give each beginning student some instruction in efficient habits of study.

As early as possible in the course each student should be given opportunity to observe and to some extent participate in the actual teaching of children in the training school. This would assist and forward the plan of progressive adjustment.

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